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ABSTRACT

This is the teacher's manual to accompany part 2 of the workbook for grade 1 pupils in the Comprehensive Instructional Management System, a teacher-designed unified mathematics curriculum for kindergarten through grade 7. It is composed of a curriculum, a testing component, and a computer-managed reporting system. The curriculum is organized into modules of similar skills or understandings from 14 topics. Each module has: a suggested period of duration for student mastery; a listing of new skills to be mastered by the student in the form of performance objectives; a section devoted to vocabulary, terms, and symbols; getting started activities on prerequisite skills in preparation for undertaking new objectives; strategies for teaching the new skills; and student activities for providing reinforcement for the newly learned objective. After the sequence of modules and content by topic are displayed, teaching suggestions for 72 modules on 114 performance objectives are given. The content is from the topics of: numbers and numeration; addition; subtraction; fractions; geometry; measurement; algebraic concepts; graphs, probability, and statistics; and problem solving. Pages from the student's workbook are interspersed with the suggested activities. (MNS)

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CIMS

COMPREHENSIVE INSTRUCTIONAL MANAGEMENT SYSTEM

A Cyclical Mathematics Curriculum

PART 2—TEACHER

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FOREWORD

The Comprehensive Instructional Management System (CIMS) is a unified mathematics curriculum for grades K-7. The curriculum is cyclical in design, and reflects the most recent New York City and New York State guidelines.

Utilizing the experience of our system's teachers, we have developed a teacher-designed curriculum that includes a rich selection of classroom-tested successful mathematics activities. The major goal of the CIMS mathematics project is to provide the classroom teacher with a well-structured, objective-based curriculum. All objectives are supported by a variety of strategies. Student mastery of these objectives is readily diagnosed through the system's testing component.

The curriculum format is structured to allow the teacher to determine the ability level of the students in the topic under study, and to permit the students to move forward at their individual rates. Each module of instruction provides the teacher with a set of related performance objectives. These objectives are supported by activities which probe and develop the students' readiness to undertake new skills and concepts. Further reinforcement is given to mastery of the objectives through accompanying student workbooks.

It is hoped that this curriculum will not only assist teachers in developing vital mathematics instruction, but will serve to expand and enrich students' mathematics skills.

Charlotte Frank

Charlotte Frank,
Executive Director
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ACKNOWLEDGMENTS - 1984

The Comprehensive Instructional Management System (CIMS) was developed as a project of the Division of Curriculum and Instruction, Charlotte Frank, Executive Director. Dr. Peter Negroni, Community School Superintendent CSD 12; Dr. Harvey Garner, Community School Superintendent CSD 18; Carlos Edwards, Community School Superintendent CSD 23, and Joseph Pacheco, Community School Superintendent CSD 32 supervised the overall development of the CIMS program within their respective districts.

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INTRODUCTION

The Comprehensive Instructional Management System (CIMS) is a teacher-designed educational delivery system composed of a curriculum, a testing component and a computer managed reporting system.

Designed to support mathematics instruction in the classroom, CIMS provides a comprehensive cyclical mathematics curriculum for grades K through 7. Each manual describes the curriculum for a single level or grade. Teacher curriculum developers from elementary, intermediate and senior high schools utilized the most current New York City and New York State guidelines in formulating the curriculum's modules and sequence.

Curriculum Topics

The CIMS mathematics curriculum has been organized into the following 14 topics:

.01 Numbers and Numeration
.02 Addition of Whole Numbers
.03 Subtraction of Whole Numbers
.04 Multiplication of Whole Numbers
.05 Division of Whole numbers
.06 Fractions
.07 Decimals
.08 Integers
.09 Geometry
.10 Measurement
.11 Algebraic Concepts
.12 Graphs, Probability, Statistics
.13 Problem Solving
.14 Review

Modules of Instruction

The CIMS curriculum is organized into modules or groupings of similar skills or understandings. Each module has a suggested period of duration for student mastery, a listing of new skills to be mastered by the student in the form of performance objectives, a section devoted to vocabulary, terms and symbols, getting started activities which serve as prerequisite skills in preparation for undertaking new objectives, strategies for teaching the new skills and student activities for providing reinforcement for the newly learned objective. Note that the lesson duration is included only as a guideline to the teacher for planning purposes. The actual time required for each module will vary from class to class and from child to child depending on the needs of the students and the teacher's judgment.

Priorities of Performance Objectives

There is an order of priority to be recognized in teaching the content presented in the CIMS NEW YORK CITY MATHEMATICS CURRICULUM. Performance objectives with the greatest priority are so basic that unless the student acquires a satisfactory degree of competency in them, the student cannot progress. Such topics are marked A and mastery by all pupils is essential.

Performance objectives marked B are required to be presented to all students. Mastery is not expected at this time. These objectives will be developed further and reinforced later.

Performance objectives marked C are of special interest. These should be taught to increase positive attitudes towards mathematics.

Summary: A - Mastery of this objective is essential for progress. Opportunities for reinforcement should be provided throughout the school year.

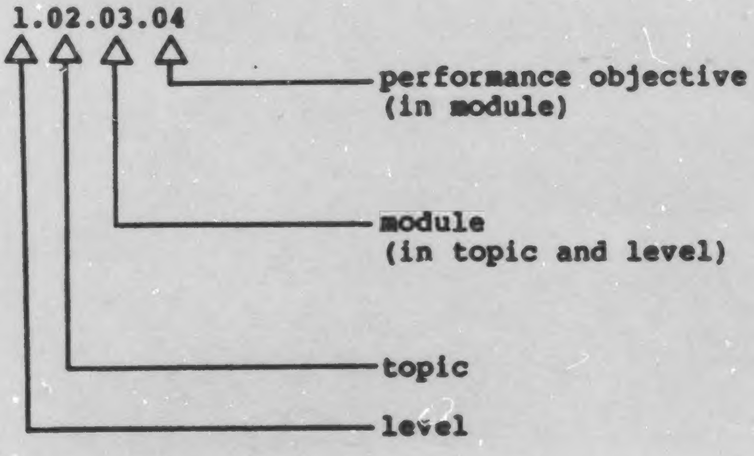
B - These objectives are to be taught to all pupils. Mastery is not essential at this time because the topics will be further developed and reinforced.

C - Objectives of special interest.

Topic Tab Key

01. Numbers and Numeration
02. Addition of Whole Numbers
03. Subtraction of Whole Numbers
04. Multiplication of Whole Numbers
05. Division of Whole Numbers
06. Fractions
07. Decimals
08. Integers
09. Geometry
10. Measurement
11. Algebraic Concepts
12. Graphs, Probability, Statistics
13. Problem Solving
14. Review

Module Coding Key


1.02.03.04
performance objective (in module)
module (in topic and level)
topic
level

INSTRUCTIONAL SEQUENCE DESCRIPTION

An instructional sequence is given in list form on the following pages for this level. Each module in the list is described by its unit number, module number, title, and page location.

The sequence has been arranged to reflect what is considered the most effective presentation of the mathematics curriculum.

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REVISED
INSTRUCTIONAL SEQUENCE - LEVEL 1

TEST NUMBER	UNIT NUMBER	MODULE NUMBER	TITLE	PAGE NUMBER
1.01.01	1	1.01.01	Spatial relationships	2
	2	1.10.01	Seasons of the year	3
1.10.02	3	1.10.02	Days of the week	4
1.01.02	4	1.01.02	Spatial relationships extended	6
1.01.03	5	1.01.03	Classification by attributes	8
1.01.04	6	1.01.04	One-to-one and more than one correspondence	9
	7	1.01.05	Sets	10
1.01.06	8	1.01.06	Compare groups of 1 through 5 objects	12
	9	1.01.07	Quantities	14
1.01.08	10	1.01.08	Numerals one (1) through five (5)	16
1.09.01	11	1.09.01	Patterns	17
1.09.02	12	1.09.02	Properties of figures and shapes	18
	13	1.10.03	Measurement of length - non-standard	19
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	17	1.10.06	Capacity	23
	18	1.10.07	Pennies and nickels	24
	19	1.10.08	Measurement - capacity	25
	20	1.10.09	Temperature - Fahrenheit	26
	21	1.10.10	Temperature - Centigrade	27
	22	1.13.01	Use drawing to represent objects	28
	23	1.13.02	Develop mathematical language through questions	29
	24	1.13.03	Use tables to develop questioning skills	30
	25	1.02.01	Identify the plus (+) symbol and the equal symbol	31

REVISED
INSTRUCTIONAL SEQUENCE - LEVEL 1

TEST NUMBER	UNIT NUMBER	MODULE NUMBER	TITLE	PAGE NUMBER
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REVISED
INSTRUCTIONAL SEQUENCE - LEVEL 1

TEST NUMBER	UNIT NUMBER	MODULE NUMBER	TITLE	PAGE NUMBER
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1.13.05 STORY PROBLEMS/NUMBER SENTENCES

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

*1.13.05.01A translate a story problem into a number sentence;

e.g.,

Mary had 5 buttons on her sweater. 3 buttons fell off. How many buttons are now on her sweater?

5 - 3 = 2

*1.13.05.02A create a story problem given a number fact through 9.

e.g.,

4 + 3 = 7

Mark has 4 soccer balls. Tommy has 3 baseballs. How many balls do the boys have in all?

1.13.05

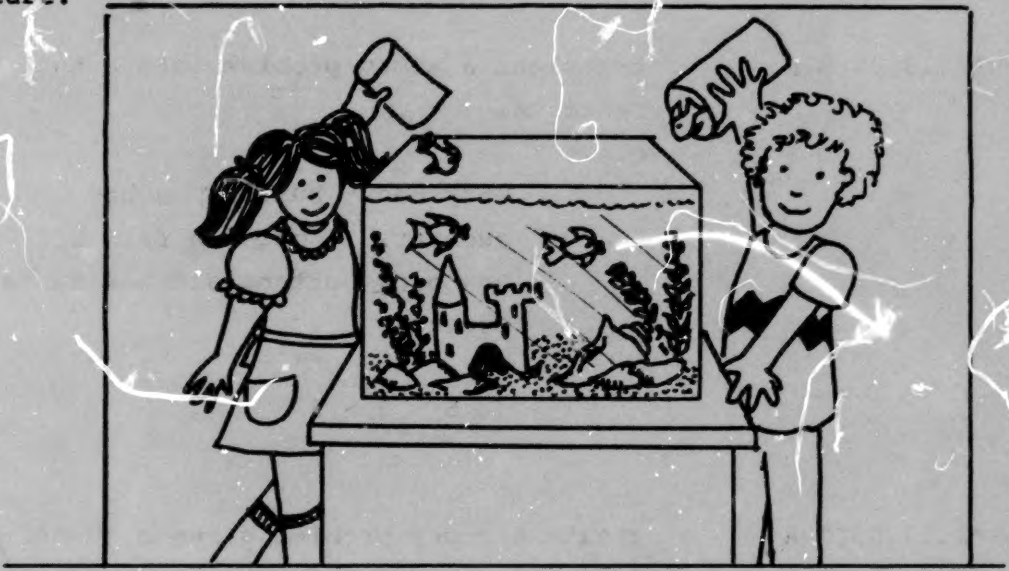
VOCABULARY

TERMS

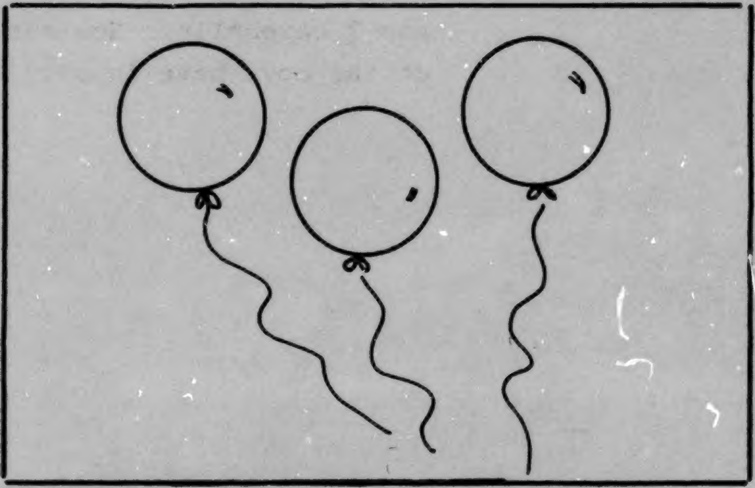
number sentence

GETTING STARTED

Display a picture. Ask several students to tell stories about the picture.



Draw three balloons on the chalkboard. Erase two of the balloons. Ask the students to describe what happened. Say, "Who can make up a story about what might have happened to the two balloons I erased?"



1.13.05

1.13.05.01 **translate a story problem into a number sentence**

STRATEGY 1: Prepare and distribute manipulative materials (sticks, chips, cubes, ...). Say, "We will use the chips to act out a story. Four people were on a bus. How many people were on the bus? How many chips do you have in front of you?" Ask the students to use their chips as you demonstrate at the chalkboard using magnetic discs. Say, "Two more people got on the bus. How many more chips do we need? How many people got on the bus?" Write 4 + 2 = 6 on the chalkboard. Point to the 4 and say, "Four people got on the bus." Point to the plus sign and say, "and." Point to the 2 and say, "Two more people got on the bus." Point to the equal sign and say, "There were." Point to the 6 and say, "There were six people on the bus."

Repeat this procedure with other story problems.

STRATEGY 2: Prepare and distribute paper to each student. Say, "Carol went to the store. She bought three bananas and two oranges. How many pieces of fruit did she buy?" Ask the students to draw the fruit that Carol bought. Demonstrate at the chalkboard. Say, "How many bananas did you draw? How many oranges did you draw? How many fruits are there in all? What number sentence can we write to go with this story? (3 + 2 = 5) Write the number sentence under your drawing."

Repeat this procedure with other story problems.

1.13.05

1.13.05.02 create a story problem given a number fact through 9

STRATEGY 1: Say, "I will give you a number fact and then I will tell you a story. Five plus four equals nine." Write 5 + 4 = 9 on the chalkboard. Point to the five and say, "Five students were playing ball." Point to the plus sign and say, "and." Point to the four and say, "Four students were playing tag. How many students were playing altogether? How are the number sentence and story alike? Who can think of a different story to tell us about this number sentence?" Ask several students to relate their stories.

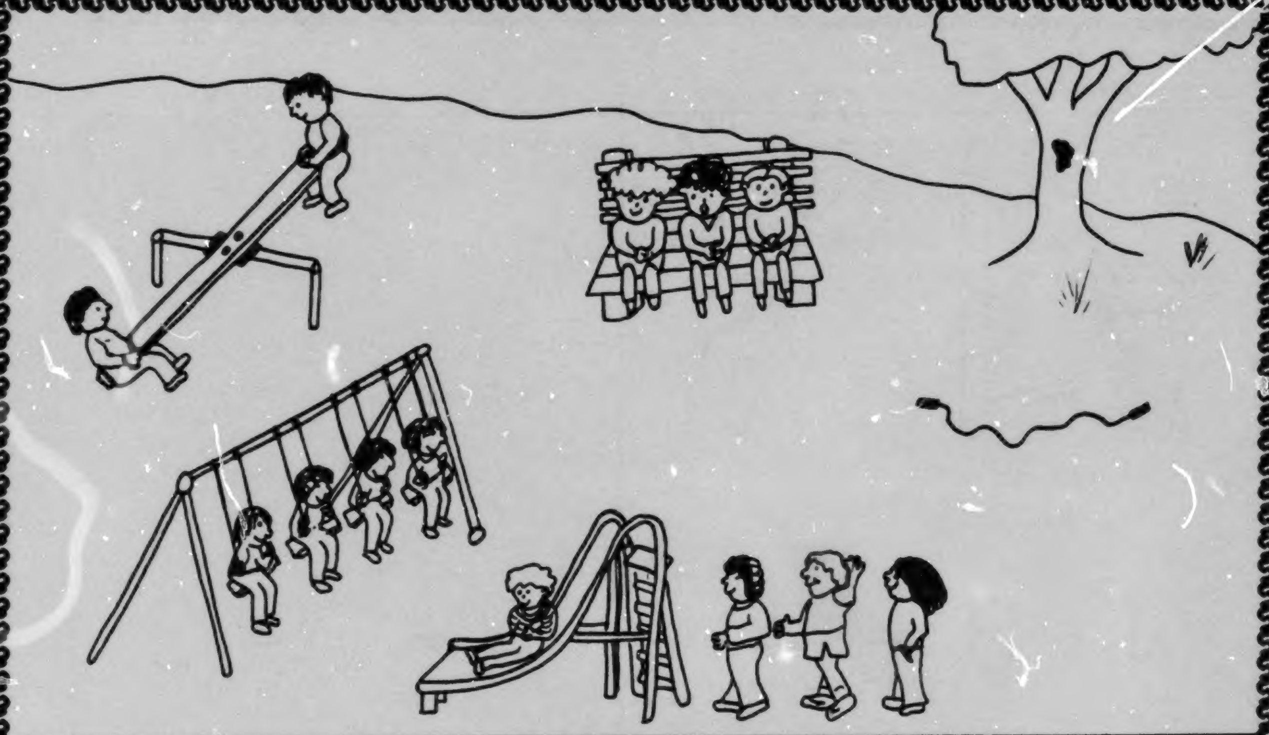
Repeat this procedure with other number facts through 9.

STRATEGY 2: Prepare and distribute drawing paper, crayons and two fact cards with sums through 9 to each student. Say, "Draw a picture that will tell a story about each number fact you were given. Think of a story that will match the pictures you draw." Ask several students to show their drawings and tell the stories that match their number facts.

P.O. 1.13.05.01

NAME: ______________________________ CLASS: __________ DATE: ________

There are many number sentences in this picture.
Write a number sentence to solve each problem below.



How many *youngsters* are on the bench and seesaw?

______ + ______ = ______

How many *youngsters* are jumping rope and on the swings?

______ + ______ = ______

How many *youngsters* are coming down the slide and waiting to climb up the slide?

______ + ______ = ______

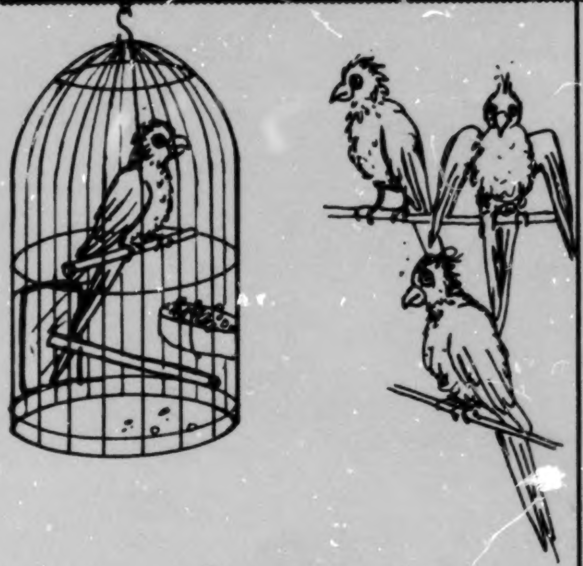
How many *youngsters* are on the swings and the bench?

______ + ______ = ______

P.O. 1.13.05.02

NAME: ______________________ CLASS: ________ DATE: ________

Draw a picture for each addition fact.
Tell a story problem about each picture.



1 + 3 = 4

1 + 2 = 3

2 + 3 = 5

3 + 3 = 6

Unit 37

1.09.03 LINE SYMMETRY

(1-2 lessons)

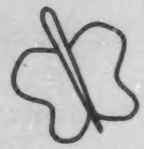
PERFORMANCE OBJECTIVES

The student will be able to...

1.09.03.01B recognize and create shapes that have a line of symmetry;

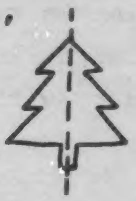
e.g.,

Use ink blots, tiles, blocks, cutouts, and geoboards.

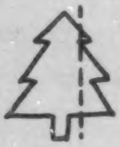


1.09.03.02C discover whether or not a given line is a line of symmetry for a figure (halves).

e.g.,



This is a line of symmetry.



This is not a line of symmetry.

Note: Use a mirror to help students decide.

1.09.03

VOCABULARY

TERMS

symmetry
line of symmetry

GETTING STARTED

Display flannelboard shapes such as circles, squares, rectangles and triangles. Say, "We are going to play a game to find the shape. We are looking for a shape which has four sides, four square corners, two short sides and two long sides. Who can pick out the shape I described? What is this shape called?" (rectangle) Repeat this procedure for the other shapes.

Prepare one blindfold and two of each of the following three-dimensional geometric shapes: (triangle, rectangle, square and circle).

Say, "We are going to play a game called Find the Shape." Blindfold a student. Place a triangle in the student's hand. Lead the student to the desk and ask him/her to find another piece with the same shape. Repeat the procedure with other shapes.

1.09.03

1.09.03.01 **recognize and create shapes that have a line of symmetry**

STRATEGY 1: Prepare and distribute two pieces of white construction paper, crayons, scissors and a jar of paint to each student. Say, "Fold one piece of paper in half. (Demonstrate.) Open the paper flat on your desk. I am going to put a few drops of paint on one half of your paper. Fold over the part of the paper without the paint. Roll your hands very lightly over the top of the paper to spread the paint. Open your papers and look at the designs you made. What things do you notice about your designs?" (color, sameness of both sides) The fold line is the line of symmetry. It divides the shape so that both sides are the same.

STRATEGY 2: Prepare and distribute geoboards and rubber bands or dot paper.

Say, "Place a long rubber band from the top center nail down to the bottom center nail. This line will divide the geoboard in half." Demonstrate half of a simple shape on one side of the board. (See worksheet 43a) Ask the students to recreate the same half shape on their boards.

Say, "Can you make the other half of the shape on your geoboard?" After the students have completed their shapes, say, "The line that runs through the middle of the shape is called the line of symmetry. It divides the shape so that both sides are exactly the same."

Repeat this procedure with other shapes and designs.

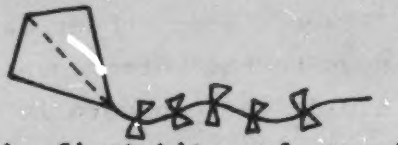
1.09.03

1.09.03.02 **discover whether or not a given line is a line of symmetry for a figure (halves)**

STRATEGY 1: Prepare and distribute patterns (rectangle, apple, heart and bell) and a blue crayon to each student. Display a rectangle cut from construction paper. Draw a dotted line on the rectangle to divide it into two parts. Say, "Do the two parts match when I fold the paper along the dotted line? (Demonstrate.) Take your rectangle and fold it in half. Open your paper and make a blue line along the fold. Fold the rectangle again. Do the parts match? When two parts are folded along a line and each part matches exactly we call the folding line a line of symmetry. What do we call the blue line? What can you tell us about the two parts?"

Repeat this procedure with the other shapes.

STRATEGY 2: Prepare flannel kites and mirrors. Display flannel kites with dotted lines to separate the parts. e.g.,



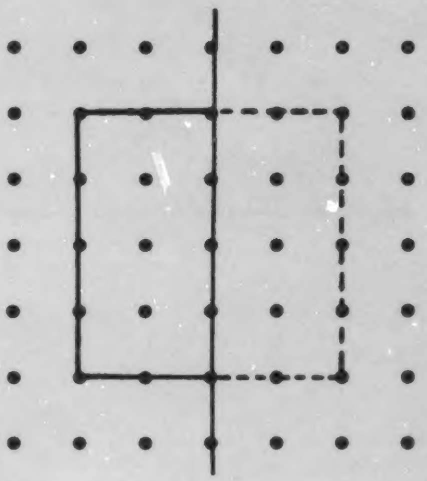
Point to the first kite and say, "When two parts match, the folding line is called a line of symmetry. What do we call the fold along the dotted line? What can you tell us about the two parts? It is too difficult to fold flannel pieces so we are going to use a mirror to see if the two parts match." Place the mirror edge on the dotted line. Say, "Does the picture on the mirror match the picture hidden beneath the mirror? How does the line on this kite show a line of symmetry?" (Because both sides of the kite match.)

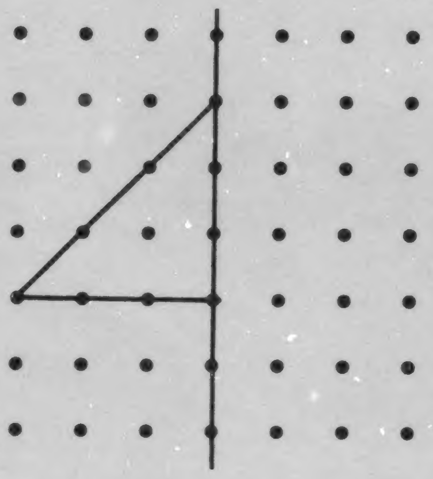
Divide the class into several groups. Allow the students to repeat the above procedure with flannel kites and mirrors.

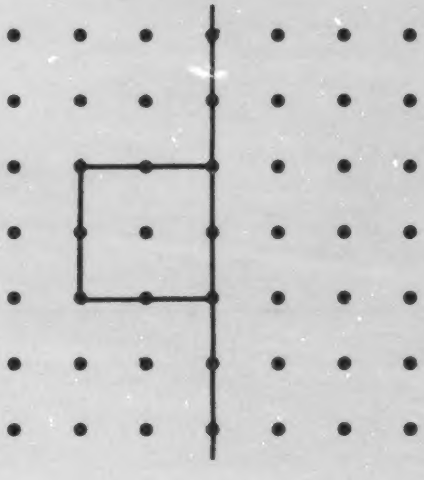
P.O. 1.09.03.01

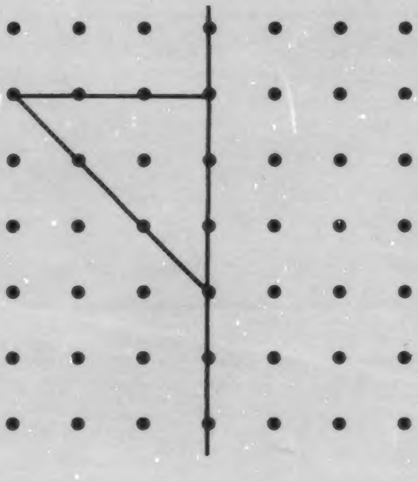
NAME: ____________________ CLASS: __________ DATE: ________

Draw the matching half on the dot paper.





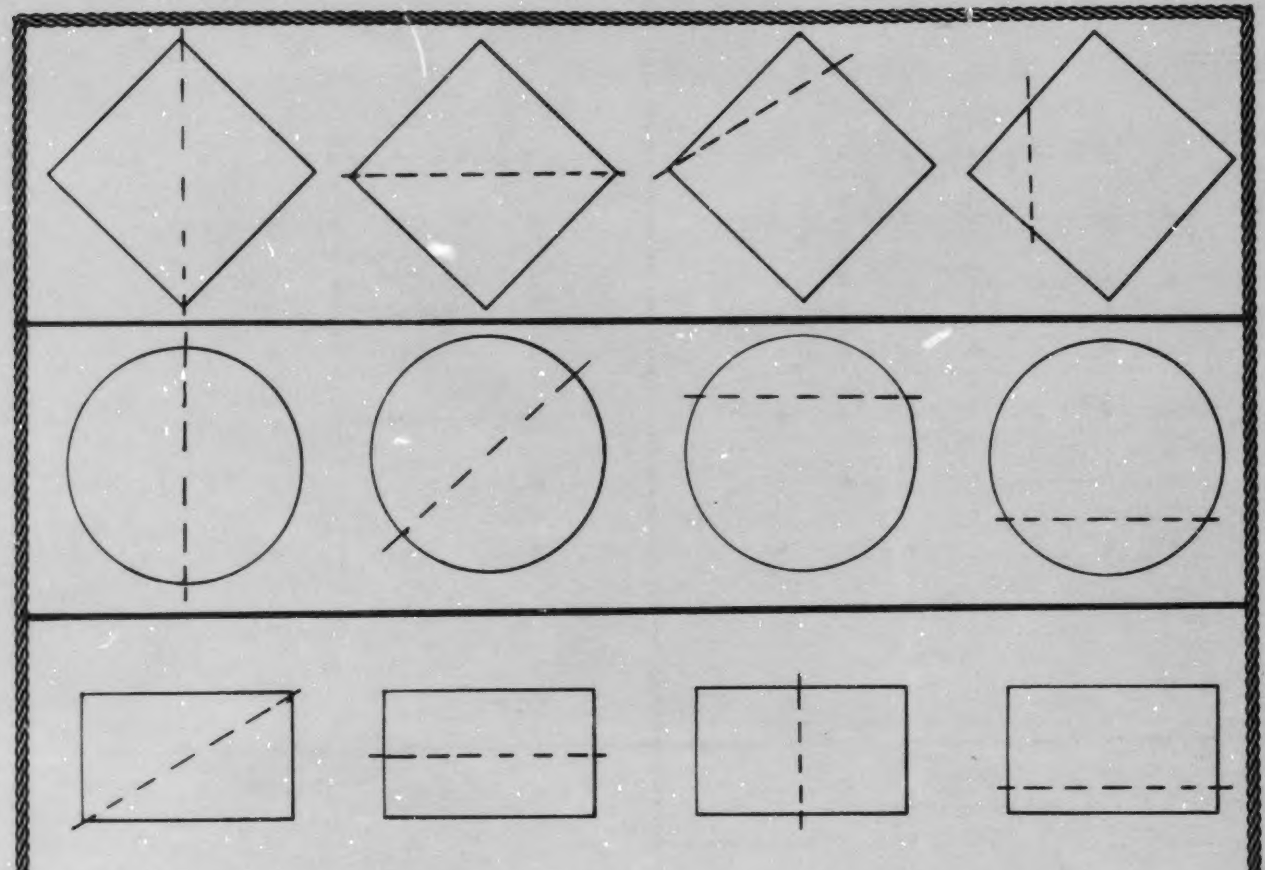




P.O. 1.09.03.02

NAME: ______________________________ CLASS: ________ DATE: ________

Draw an X on the shapes that show that both pieces are exactly the same.



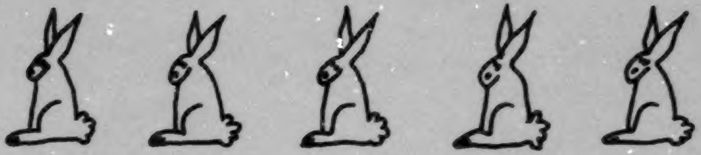
1.01.11 ORDINAL NUMBERS FIRST THROUGH FIFTH

(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

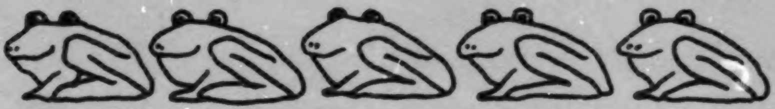
1.01.11.01B identify the ordinal position of each object in a row of 1 through 5 objects; e.g.,



Start here: 1st 2nd 3rd 4th 5th
first second third fourth fifth

1.01.11.02B recite the ordinal names;
e.g.,
first, second, third, fourth, fifth

1.01.11.03B match the ordinal number words first through fifth to the cardinal numbers 1 through 5;
e.g.,



Start here: 1 2 3 4 5
first second third fourth fifth

1.01.11.04B write the numeral form for the given ordinal number word.

e.g.,

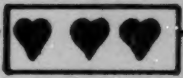
Second 2nd

1.01.11

VOCABULARY

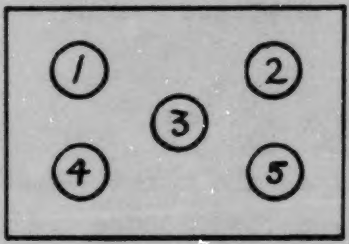
TERMS	SYMBOLS
first	1st
second	2nd
third	3rd
fourth	4th
fifth	5th
after	

GETTING STARTED

Prepare and distribute numeral cards 1 through 5 to each student. Say, "I will show you pictures. Count to yourselves the number of objects you see and hold up the numeral card showing how many you counted." Keep the pictures simple so that the students can easily and quickly count the number of objects pictured on each card. e.g., . Flash the cards in random order.

Distribute a paper with five circles on it. Number each circle from one to five.

e.g.,



Say, "Take out your crayons. Color the circle with the numeral 1 orange. Color the circle with the numeral 3 blue... " Continue this procedure for the remaining circles.

1.01.11

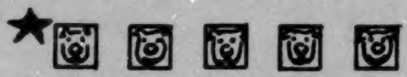
1.01.11.01 Identify the ordinal position of each object in a row of 1 through 5 objects

STRATEGY 1: Prepare a set of pictures to illustrate the poem "This Little Piggy". Teach and recite the poem, substituting ordinal number words for the word "this". Show the pictures (one at a time) as the poem is recited by the students.

"The first little piggy went to market.
The second little piggy stayed home.
The third little piggy had roast beef.
The fourth little piggy had none.
And the fifth little piggy cried,
'Wee, wee, wee,' all the way home."

Display the five pictures at random. Recite the poem again. Say, "Who can show us the picture that tells us about the first little piggy?" Ask a student to place the picture of the piggy who went to market on the chalkboard. Draw a star as the starting point.

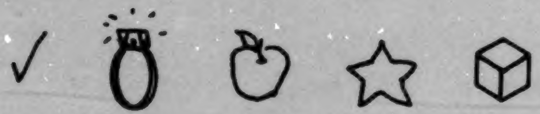
e.g.,



Say, "Who can tell us about the second little piggy? Can you find the picture that shows that he/she stayed home? Place it next to the first little piggy." Continue this procedure until all five pictures are in sequence. Ask a student to come to the front of the room and point to each picture in sequence as the poem is recited again.

STRATEGY 2: Prepare and distribute paper. Draw five pictures on the chalkboard.

e.g.,



1.01.11

STRATEGY 2: cont'd

Point to the ✓ and say, "The check is first. The ring is second... Which is the first symbol? ...the fourth? ...the third? ...the second? ...the fifth? What place does the star have? ...the box have? On your paper draw five boxes. Color the first box red, the third box yellow... "

Repeat this procedure using other sequences.

1.01.11.02 recite the ordinal names

STRATEGY 1:

Prepare a five car train using a different color for each car. Say, "I will be the conductor." Ask a student to hold one of the cars and say, "Edith is first." Ask another student to hold another car and stand to the right of the first student. Say, "Dorothy is second." Continue this procedure until five students have formed the train. Stand behind each student and say in order, "Edith is first, Dorothy is second. Who is third? Which car is Randy holding? Which car is after the fourth car?" Ask a student to become the conductor and select five other students to make a train.

Repeat this procedure until sufficient reinforcement is given.

STRATEGY 2:

Prepare and distribute a strip of adding machine paper and five gummed circles of different colors to each student. Prepare five magnetic discs each covered in a different color. Say, "Paste your circles in any order on the strip of paper." Ask several students to describe their arrangement, guiding them to use the ordinal number words, e.g., "I put the red circle first, the yellow circle second... "

Display the magnetic discs. Say, "Who can place

STRATEGY 2: cont'd

the blue disc first, the green disc second, ..." Change the order of the discs, point to one at random and say, "In which place is the orange disc? ...the red disc? ...?"

1.01.11.03 **match the ordinal number words first through fifth to the cardinal numbers 1 through 5**

STRATEGY 1:

Prepare two sets of cards: "1" through "5" and "first" through "fifth". Write the numerals 1 through 5 on the chalkboard. Say, "Let's call one the first number." Using colored chalk, write "first" below the numeral 1. Repeat this procedure with the other numerals.

Ask five students to select a number card. Then ask five other students to select ordinal word cards and change places with the students holding the cardinal number cards. Say, "Who is the fifth, third...? In which place is Joe standing?"

Repeat this procedure with other students.

STRATEGY 2:

Write the numbers one through five on a chart. Say, "We call one the first number." Using a colored marker, write "first" below 1. Say, "This is the word first." Repeat this procedure with the other numbers.

Use the cards prepared for Strategy 1. Place the cards on students' desks. Ask five students to go to the chalkboard. Say, "Who is first? Who is second? ...?" Ask each of the five students to walk around the room and select number cards and ordinal number words that will match the ordinal number the students were given.

Repeat this procedure with other students.

1.01.11

1.01.11.04 **write the numeral form for the given ordinal number word**

STRATEGY 1: Prepare a set of ordinal number cards labeled first through fifth with the last two letters of each word underlined. Flash the cards and ask the students to read each one. Write the numerals 1 though 5 on the chalkboard. Hold up one of the ordinal number word cards. Say, "Who can read this card?" Place the card under the numeral it represents.

e.g.,

1	2	3	4	5
first	second			

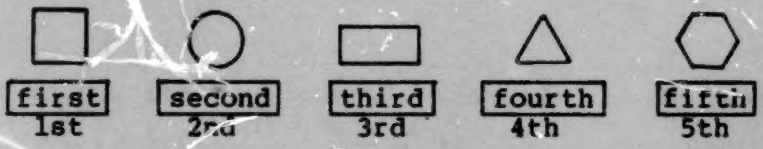
When all the cards have been placed in order, ask the students to look at the underlined letters in each of the ordinal number words. Say, "Which letters are underlined in the word first?" Write the st next to the numeral 1. Say, "This is the numeral form for the word first." Have the students say "first". Say, "Which two letters are underlined in the word second?" Ask a student to write the nd after the numeral 2 and read it as "second". Continue this procedure with the other ordinal number words.

STRATEGY 2: Prepare and distribute paper, ordinal number word cards and five shapes to each group of five students. Ask one student in each group to read the ordinal number word cards and place them in order on the table. Say, "Arrange the shapes so that one shape is above each of the word cards. Copy the arrangement of shapes and the ordinal number words on your paper. Let's write the

STRATEGY 2: cont'd

ordinal number each shape represents. Which shape is second, fourth... ?"

e.g.,

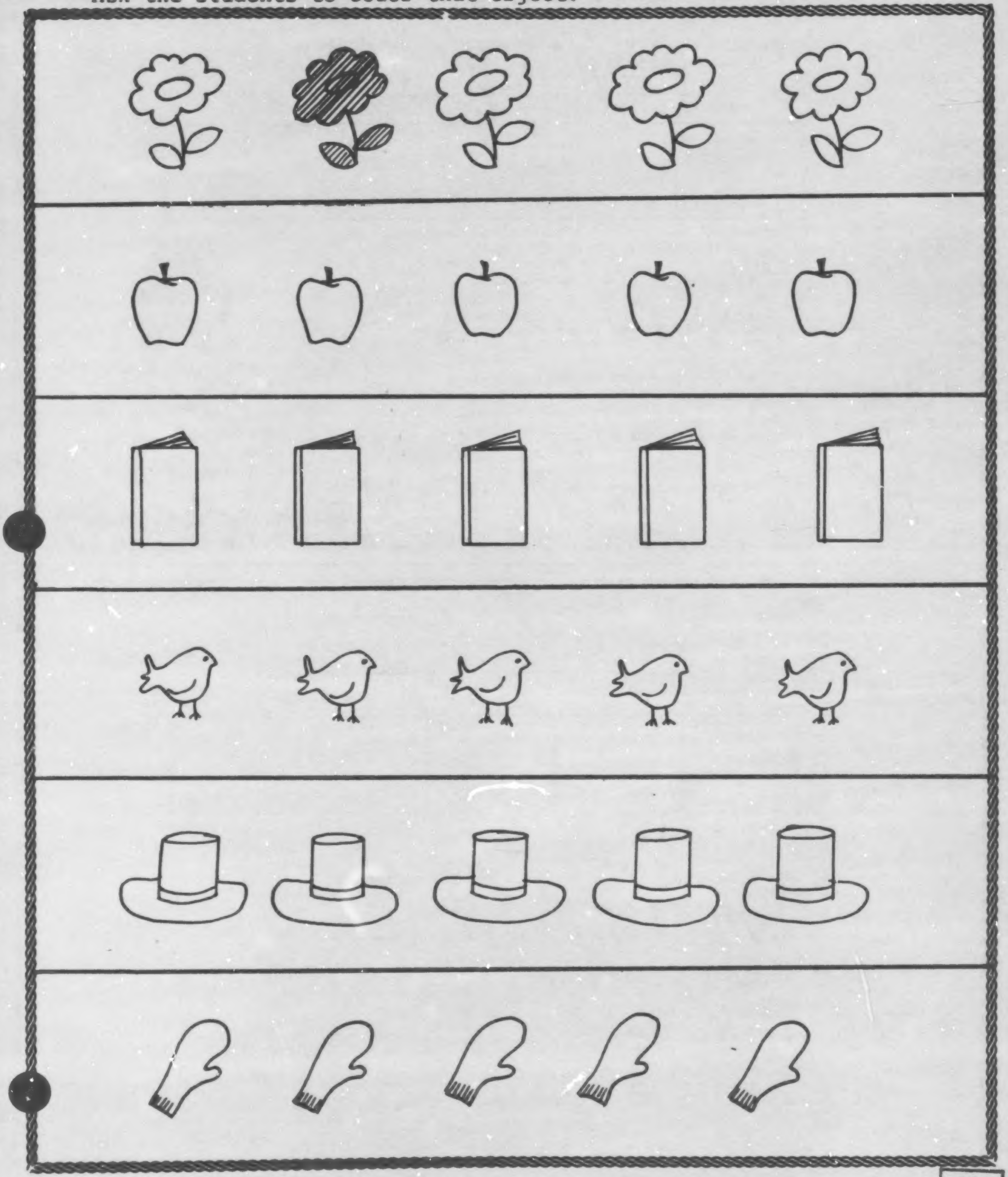

first
1st
second
2nd
third
3rd
fourth
4th
fifth
5th

Ask students to make new arrangements to be drawn and labeled by the rest of the group.

P.O. 1.01.11.01

NAME:______________________________ CLASS:__________ DATE:________

DIRECTIONS TO TEACHER:
Name an object in each row by its ordinal position.
Ask the students to color that object.



P.O. 1.01.11.02

NAME: ______________________ CLASS: ________ DATE: ________

Directions: Solve the puzzle.
Ask the students to recite the position of each letter in the answer.

What are you?

The 4th letter is R.
The 1st letter is S.
The 3rd letter is A.
The 5th letter is T.
The 2nd letter is M.

You live in this.

The 3rd letter is U.
The 5th letter is E.
The 1st letter is H.
The 4th letter is S.
The 2nd letter is O.

P.O. 1.01.11.03

NAME: ______________________ CLASS: ________ DATE: ________

Match the number to the ordinal word.

1	2	3	4	5
first	second	third	fourth	fifth

DRAW A LINE

1 - - - - - - - - - - - - - - - - first
2 second
3 third
4 fourth
5 fifth

DRAW A LINE

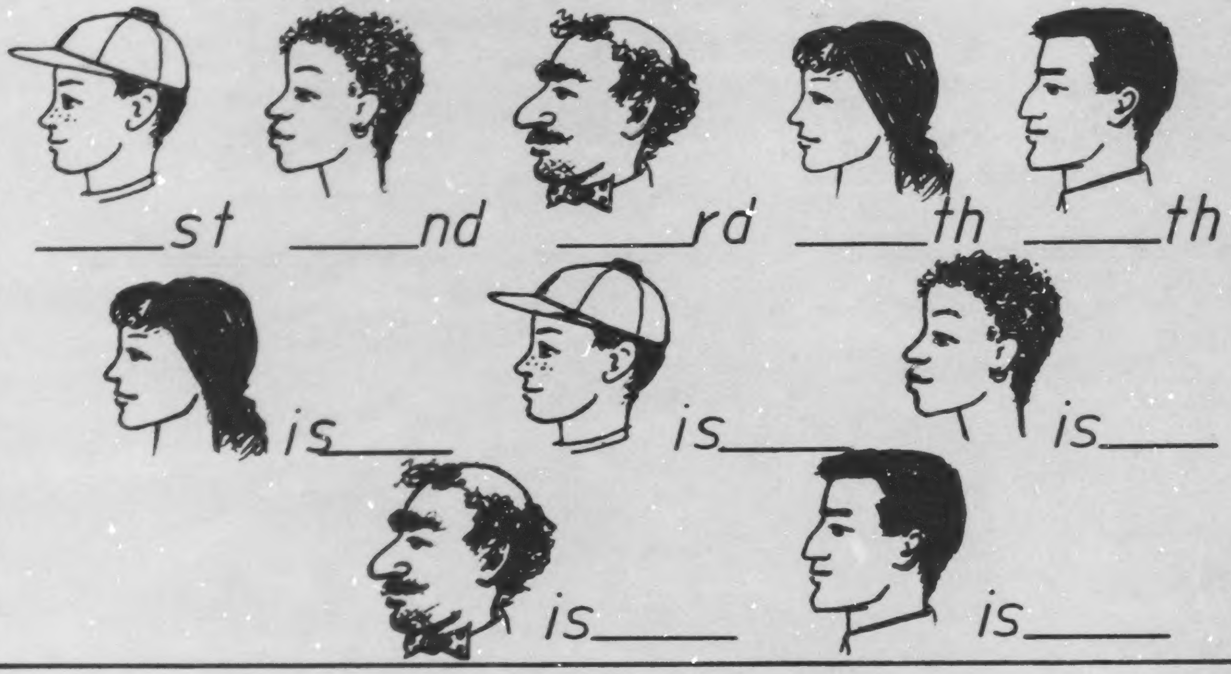
first 1
second 4
third 3
fourth 5
fifth 2

P.O. 1.01.11.04

NAME: ______________________ CLASS: ________ DATE: ______

Fill in the blank spaces by following the direction given.

WAITING ON LINE

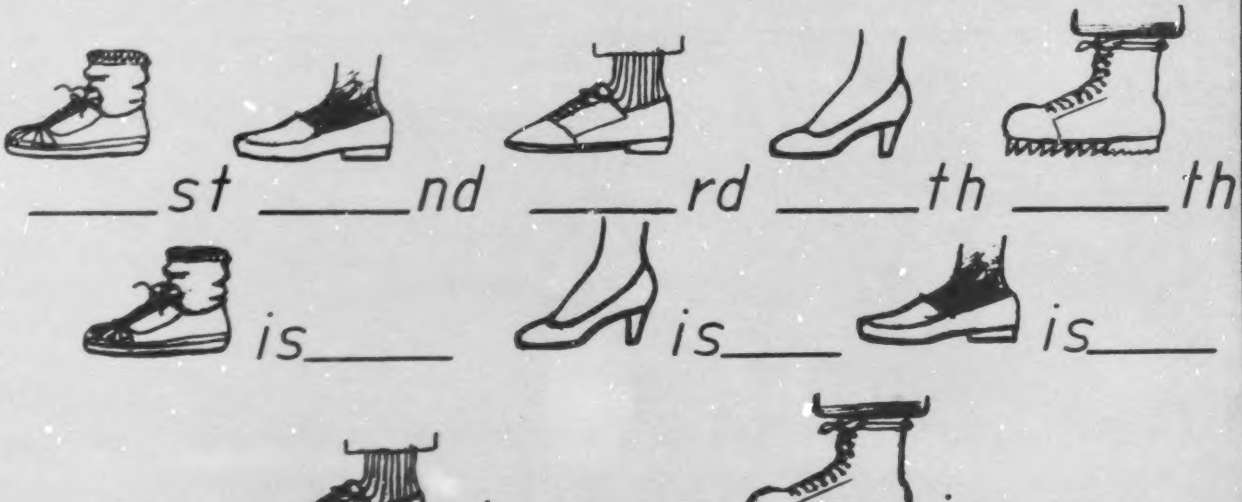


____st ____nd ____rd ____th ____th

is____ is____ is____

is____ is____

A SIDEWALK VIEW



____st ____nd ____rd ____th ____th

is____ is____ is____

is____ is____

Unit 39

1.10.12 STANDARD MEASUREMENT-CUSTOMARY

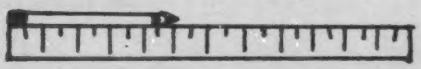
(3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

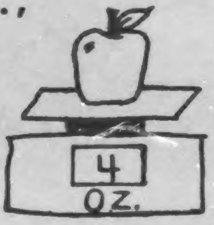
1.10.12.01B identify the inch, foot and yard as standard units of length;
e.g.,
in., ft., yd.

1.10.12.02B use rulers and measuring tapes to measure familiar objects to the nearest inch, foot and yard;
e.g.,



1.10.12.03B identify ounce and pound as standard units of weight;
e.g.,
oz. lb.

1.10.12.04B determine the weight of objects to the nearest ounce, pound.
e.g.,



1.10.12

VOCABULARY

TERMS	SYMBOLS
inch	in.
foot	ft.
yard	yd.
ounce	oz.
pound	lb.

GETTING STARTED

Prepare and distribute straws and drawing paper folded in thirds to each group of four or five students. Display a classroom object (e.g., notebook) and say, "I want to find out how long this notebook is. About how many straws would I need to measure the notebook?" After the students have guess-timated the number of straws needed, demonstrate. Explain to the students that they are going to measure several classroom objects. Before they measure the object they will guess the number of straws needed to measure the object.
Direct the students' attention to the paper folded in thirds. In section one, have them draw a picture of the object, in section two, have them write their guess and in section three, the actual length using straws.

e.g.,

PICTURE	GUESS	LENGTH
	3	2

Discuss and compare their guesses with the actual measures.

Prepare objects of different weights, e.g., rock, cottonball, feather, ball... Display two objects (rock, cottonball). Say, "Which of these two objects is heavier, the rock or the cottonball? How can we find out which object is heavier?" Ask a student to hold one object in each hand to determine which is heavier.

Choose two other objects. Ask the students to guess which object is heavier/lighter, then have them hold the object to determine which is heavier/lighter.

1.10.12

1.10.12.01 **identify the inch, foot and yard as standard units of length**

STRATEGY 1: Prepare a one inch strip, a twelve inch ruler and a yardstick. Direct the students' attention to three classroom objects (e.g., pencil, flannelboard, door). Say, "If we want to find out how long each of these objects is what would we do? (measure them) What could we use to measure each object? (a ruler) Using a ruler, rather than straws or hands, is a more exact way of measuring an object because a ruler is a standard measure."

Display the one inch strip, ruler and yardstick. Explain to the students that all three are used to measure the length of an object. Say, "We use the one inch strip to measure very small things, we use the ruler to measure bigger things and we use the yardstick to measure very big things. Introduce the terms inch, foot and yard and relate them to the inch strip, ruler and yardstick. Compare the inch strip to the length of the students' thumb, the ruler to the length of their arm and yardstick to the length of their body.

STRATEGY 2: Prepare several strips of string or ribbon cut into inches, feet and yards, a tape measure, ruler and yardstick for each group of four or five students.

Hold up a tape measure and say, "Who can tell us what this is used for? What kinds of things can we measure with this? We can find out how long something is by using a tape measure. Does anyone know of another kind of tool used for measuring the length of an object?" (ruler)

Display a ruler and a yardstick. Say, "We now know that the tape measure, ruler and yardstick all

1.10.12

STRATEGY 2: cont'd

measure how long an object is. Are they all the same? What is different about them?" Elicit from the students that each tool is used to measure different sized objects.

Introduce the terms inch, foot and yard. Show the students the three lengths of each measuring tool, then ask them to identify the inch, foot and yard on each tool.

Point to various objects in the classroom (e.g., clip, window etc.) and ask the students to identify the length as inch, foot or yard. Distribute the inch, foot and yard strings to each group of students. Give each group a list of several objects and ask them to place the appropriate size string on that object. (e.g., drawing paper - foot strip of string.)

1.10.12.02 **use rulers and measuring tapes to measure familiar objects to the nearest inch, foot and yard**

STRATEGY 1: Prepare and display a 12 inch ruler, yardstick and tape measure. Identify the inch, foot and yard on each measuring tool. Display a pencil. Say, "Let's find out the length of this pencil. Do you think we will measure it in inches, feet or yards? Why?" Ask a student to come up and measure the pencil. Say, "The pencil is about ___ inches."

Draw several lines of various lengths on the chalkboard. Ask different students to come up to the chalkboard and measure each line to the nearest inch, foot or yard. Write the length under each line.

STRATEGY 2: Prepare and distribute a ruler, tape measure and/or yardstick to each group of four or five students.

1.10.12

STRATEGY 2: cont'd

Say, "We are going to measure several different objects to the nearest inch, foot or yard."

Hold up a small notebook and say, "I want to measure this notebook. Will I measure it in inches, feet or yards? Why?" Measure the notebook and say, "About how many inches is the notebook?" Write, "The notebook is about ___ inches" on the chalkboard.

Ask the students to identify objects in the classroom to be measured by inch, by feet and by yards. Ask the students to measure each object and record the length to the nearest inch, foot or yard.

1.10.12.03 **identify ounce and pound as standard units of weight**

STRATEGY 1: Prepare and display a pan balance. Hold up two familiar objects (e.g., a pencil and a textbook). Ask the students which object is heavier/lighter. Place the book and the pencil on the pan balance to test their answer choices. Say, "Why did we put the book and the pencil on the pan balance? (To weigh them.) A pan balance is a type of scale. Scales are used to weigh objects. What kinds of things do we put on scales? Do all things weigh the same?" Hold up the pencil and say, "A pencil is light. We measure objects that are light in ounces."

Repeat the same procedure to introduce pounds. Point to various objects in the classroom and ask the students to identify whether the object is measured in ounces or pounds.

1.10.12

STRATEGY 2: Prepare and display a scale that measures weight in pounds and ounces, objects that weigh less than a pound, objects that weigh at least one pound, old magazines, scissors, paste and drawing paper.

Say, "Yesterday I went to the grocery store. I bought some apples. Before I paid for the apples what do you think the grocery person did with them? (weighed them) We can measure how much something weighs in pounds. We use a scale to find the number of pounds." (Demonstrate) Ask various students to weigh single apples. Say, "One apple weighs less than a pound. It weighs a few ounces. An ounce is smaller than a pound."

Ask students to name classroom objects measured in pounds and objects measured in ounces. Display the objects and ask the students to sort them into two groups; those measured in pounds and those measured in ounces.

Distribute magazines, paste, scissors and drawing paper. Ask the students to fold the drawing paper in half and label one side ounces and the other side pounds. Say, "Use the magazines to find pictures of objects that are weighed in ounces/pounds and paste them on the correct side of the paper." Ask the students to explain why they placed their pictures in a particular column.

1.10.12.04 **determine the weight of objects to the nearest ounce, pound**

STRATEGY 1: Prepare and display a scale that measures weight in pounds and ounces and various objects to be weighed. (e.g., a book, a box of chalk, 2 shoes, a can of sand, 3 pencils, ...)

50

330

1.10.12

STRATEGY 1: cont'd

Hold up the box of chalk and say, "Do you think that this box of chalk weighs more or less than one pound? If it weighs less than one pound, how will it be measured? (in ounces) Let's weigh the chalk." Ask a student to tell the number of ounces. Write the name of the object and its weight on the chalkboard. Develop a chart to record this information.

e.g.,

Object	Weight

Repeat this procedure for all of the objects. After the weight of all the objects has been recorded, ask the students to order the objects according to weight. (e.g., lightest to heaviest)

STRATEGY 2:

Prepare and display a scale that measures objects in pounds and ounces and the following chart.

e.g.,

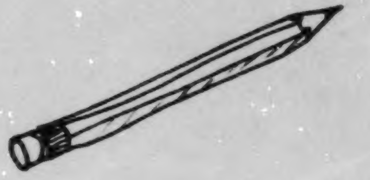
Object	Guess	Weight

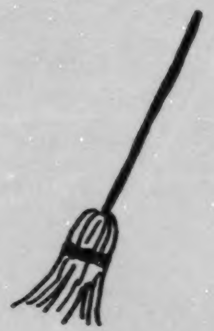
Distribute objects of various weights and a sheet of drawing paper to each group of four or five students. Ask the students to hold each object and estimate the weight of the object to the nearest ounce or pound. After the estimates have been recorded ask the students to use the scale to check the actual weight of each object. Compare the estimates with the actual weights.

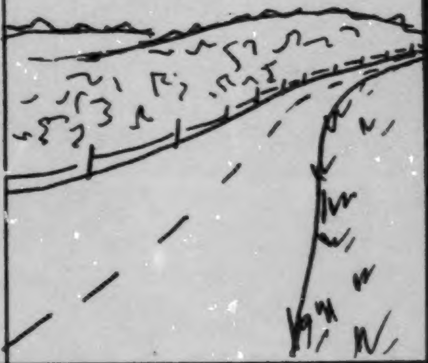
P.O. 1.10.12.01

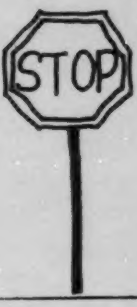
NAME:______________________________ CLASS:__________ DATE:________

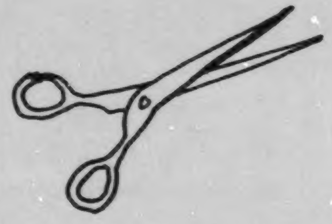
Draw an X on the objects which can best be measured in inches.
Circle the objects which can best be measured in feet.
Draw a triangle around the objects which can best be measured in yards.

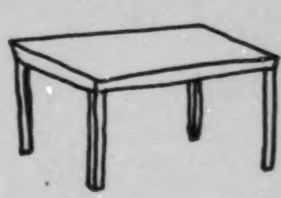


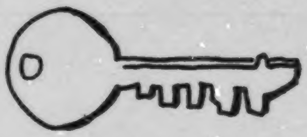


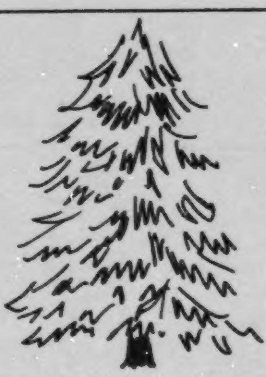


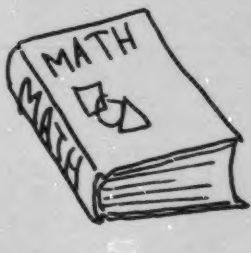


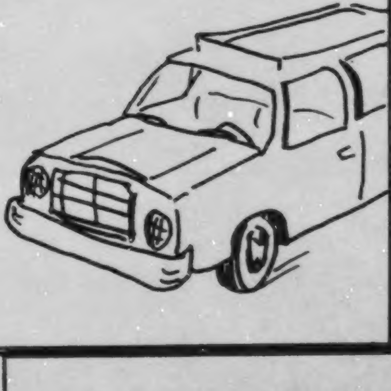


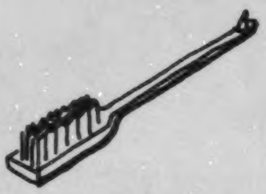


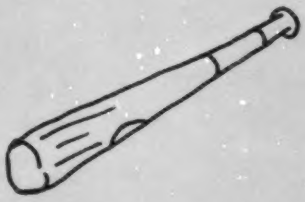










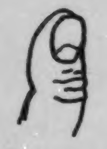
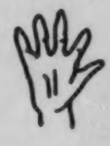
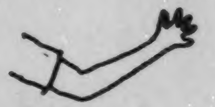
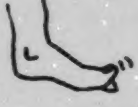
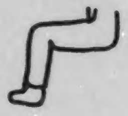
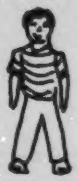


P.O. 1.10.12.02

NAME: ______________________ **CLASS:** ________ **DATE:** ________

Read the story. Fill in the blanks with measures of each part of your body to the nearest inch, foot or yard.
DIRECTIONS FOR TEACHER: Distribute rulers or tape measure.

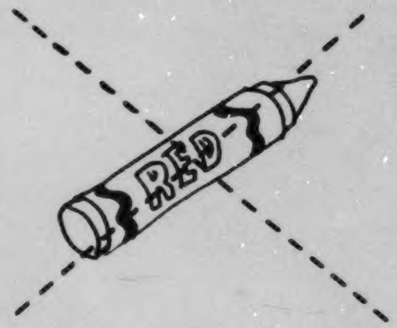
Measures of Me

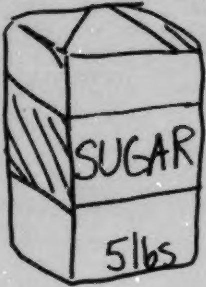
My name is ____________. I am in the ______ grade. My  is about _____ inch(es) long. My  is about ____ inch(es) long. My  is about ____ inch(es) long. My  is about ____ inch(es) long. My  is about ___ feet. I  am about ______ feet tall. And these are all measures of me.

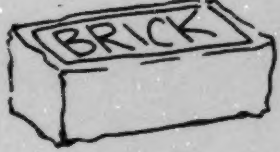
P.O. 1.10.12.03

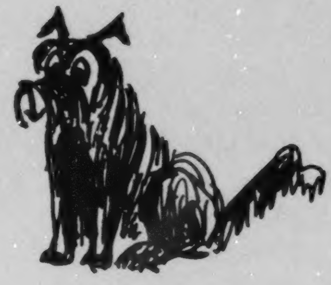
NAME: ______________________ CLASS: __________ DATE: ________

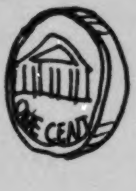
- Draw an X on the objects whose weight can best be measured in ounces. Circle the objects whose weight can best be measured in pounds.

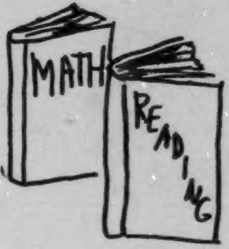


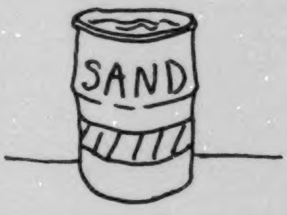


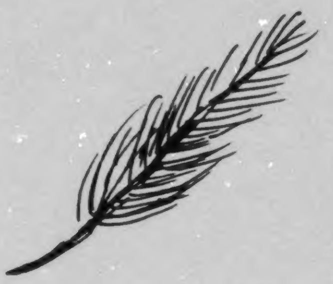


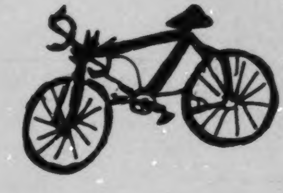


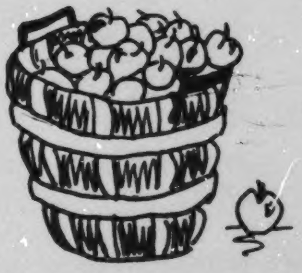


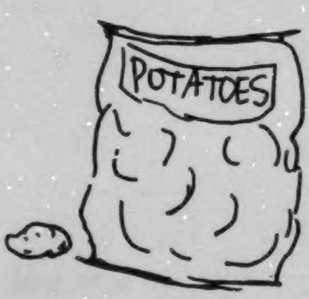

MATH
READING

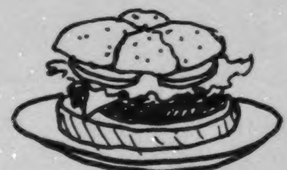








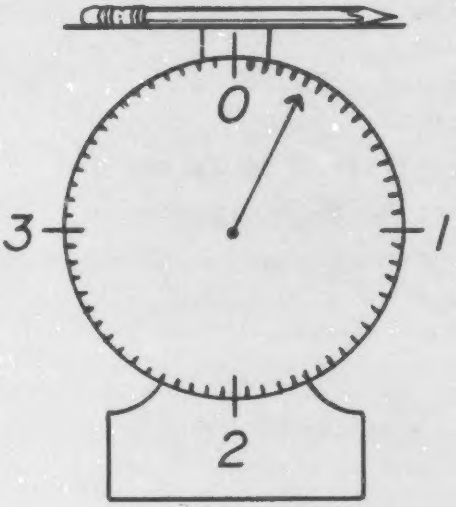




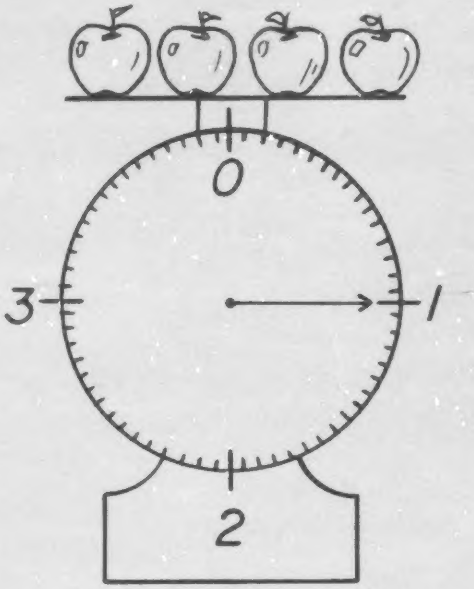
P.O. 1.10.12.04

NAME:________________________ CLASS:__________ DATE:________

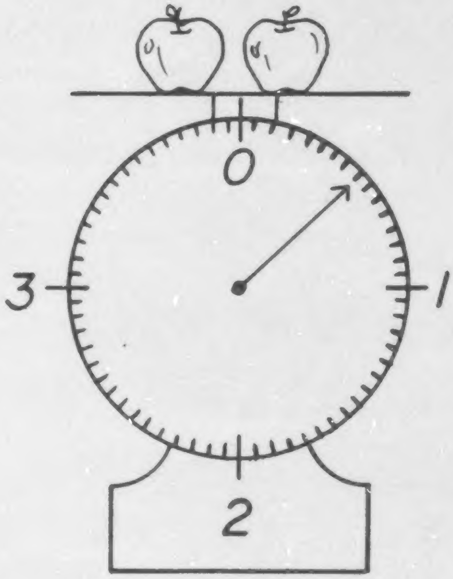
What is the weight of each object to the nearest ounce or pound?



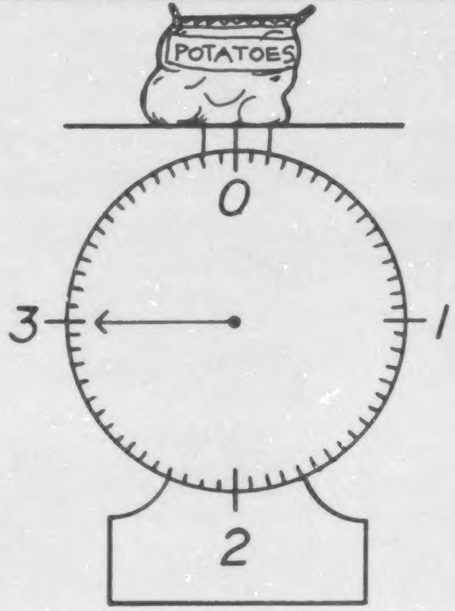
5 ounces



____ pound



____ ounces

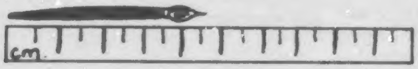
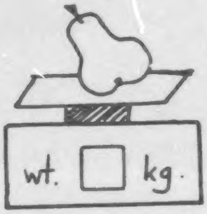

POTATOES
0
1
2
3

____ pounds

1.10.13 STANDARD MEASUREMENT-METRIC

(3 lessons)

PERFORMANCE OBJECTIVES

	The student will be able to...
1.10.13.01B	identify the centimeter, decimeter and meter as standard units of length; e.g., cm, dm, m
1.10.13.02B	use centimeter rulers, centimeter measuring tapes and meter sticks to measure familiar objects; e.g., 
1.10.13.03B	identify the kilogram as a standard unit of weight; e.g., kg
1.10.13.04B	determine the weight of objects to the nearest kilogram. e.g., 

1.10.13

VOCABULARY

TERMS	SYMBOLS
metric	
centimeter	cm
decimeter	dm
meter	m
kilogram	kg

GETTING STARTED

Teach the students the following poem:

Measuring

Measuring from head to toe
Finding out how tall we grow.
Measuring food when we cook
From the recipe in the book.
Measuring how long and wide,
The distance is from side to side.
Measuring our height and weight,
Isn't measuring just great?

Play a jumping game. Make a line on the floor with colored tape to indicate the starting place. Ask one student to mark the other students' landing spots with a chalk line. Use a ball of string or yarn and cut lengths equal to each student's jump. After each student had his/her turn, attach name labels to each string. Arrange the strings on a large posterboard or on the chalkboard in order of length.

Have available a scale and a block. Prepare and distribute a small sheet of paper to each student. Say, "We will have a contest to see who can best estimate the weight of this block. It weighs between one ounce and one pound. I will pass the block around from student to student. Hold the block in your hand and then pass it to the next student. Write your name and your estimate on your sheet of paper." When every student has had a chance, arrange the students in a semi-circle around the scale. Place the block on the scale and have its weight read by the students. The students will then check their papers to see who came the closest in estimating the weight of the block.

1.10.13

1.10.13.01 **identify the centimeter, decimeter and meter as standard units of length**

STRATEGY 1: Distribute centimeter interlocking cubes or centimeter squared materials to groups of students. Display a centimeter cube. Discuss the properties of the cube with the students. Say, "Can you think of any objects that are about the same size as this cube?" List the responses on the chalkboard. Say, "This unit of measurement has a special name. It is called a centimeter." Write the word centimeter above the class responses.

Repeat this procedure with the decimeter and the meter.

STRATEGY 2: Draw three lines on the chalkboard each of the following lengths: a centimeter, a decimeter and a meter. Write the metric unit under each line. Prepare and display items of varying lengths, e.g., book, eraser, pen, clip, paper, desk, table, road map, staples, straw, jump rope... Ask the students which metric unit would best measure each item. Elicit that the smallest items are measured in centimeters and the largest in meters. Middle-sized items may be measured in decimeters. Ask the students to use the lines to check their estimates for each object.

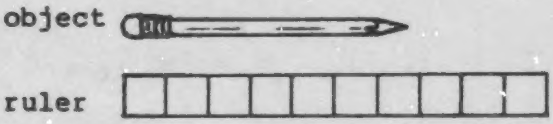
1.10.13.02 **use centimeter rulers, centimeter measuring tapes and meter sticks to measure familiar objects**

STRATEGY 1: Prepare and distribute a centimeter ruler and coded strips of colored paper varying in size from one to ten centimeters. Explain to the students that the boxes between the lines on the ruler is one

STRATEGY 1: cont'd

centimeter long. Say, "Count the boxes. The number of boxes tells us how many centimeters long our rulers are." Emphasize that when measuring, one end of the paper or object must be aligned with the beginning mark on the ruler. Demonstrate at the chalkboard.

e.g.,



Ask the students to measure the color coded paper with their rulers. Say, "Who has a paper 9 centimeters long? Who has a paper 4 centimeters long? Who has a paper 1 decimeter long? How do you know?" Ask the students to exchange strips and repeat the activity. You may order the strips at the chalkboard in ascending order.

STRATEGY 2: Hold up the meter stick. Say, "This is a meter stick. Today we are going to measure lengths of objects in the room using the meter stick. First, we will guess whether the object is more or less than a meter. Then we will measure it to find out how long it really is."

Draw the following chart on the chalkboard.

Is it a Meter?

	Guess		Actual	
	More	Less	More	Less
desk		x	x	
closet door	x		x	
table		x		x

Ask students to guess whether certain objects are more or less than a meter. Then ask other students to measure the objects and mark the proper columns on the chart.

1.10.13

1.10.13.03 **identify the kilogram as a standard unit of weight**

STRATEGY 1: Say, "Who remembers the word we use when we talk about how much we weigh? We say we weigh 98 what? (pounds) Can you think of any other word that tells about weight? (ounce) Today we will use a metric scale. It weighs objects in kilograms. The symbol for kilogram is kg." Write kilogram (kg) on the chalkboard. Display a kilogram weight. Say, "This object weighs one kilogram. It is about as heavy as a dictionary." Pass the kilogram weight around from student to student so that they can get the feel of a kilogram. Say, "Can you think of any other objects that weigh about one kilogram?" Write the responses on the chalkboard.

STRATEGY 2: Prepare and display a kilogram weight and various objects, some weighing about one kilogram. Ask the students to pass the kilogram weight around to one another to get the feel of its weight. After all the students have held the kilogram weight, say, "The weight of this object is one kilogram." Write the word "kilogram" and the symbol kg on the chalkboard. Say, "Who would like to compare the weight of the kilogram to one of the objects at the front of the room?" Allow the students to compare the objects to the kilogram weight. Discuss which objects "feel" about the same in weight and list them on the chalkboard under the word "kilogram".

1.10.13

1.10.13.04 **determine the weight of objects to the nearest kilogram**

STRATEGY 1: Display a kilogram weight and a balance scale. Ask several students to hold the kilogram weight. Say, "We are going to guess whether objects in the classroom weigh more, less or the same as one kilogram. We will guess the weight by holding the kilogram weight in one hand and the object in the other." Write the following chart on the chalkboard.

Does It Weigh A Kilogram? (kg)

	Guess		Actual	
Object	More	Less	More	Less

After the "Guess" column has been completed, display the balance scale. Weigh each item again and complete the "actual" column.

STRATEGY 2: Prepare and display a kilogram scale and several objects to be weighed. Ask the students to weigh each item and record the weight to the nearest kilogram on a chart in their notebooks.

e.g.,

Object	Kilogram (kg)
eraser	0
5 erasers	1
2 books	1
1 dictionary	1

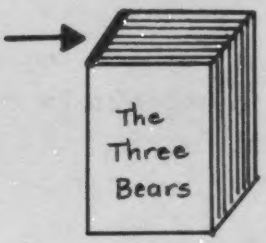
Say, "We have found the weight of different objects using the metric unit, kilogram."

NOTE TO TEACHER: The abbreviation for kilogram always has a small "k".

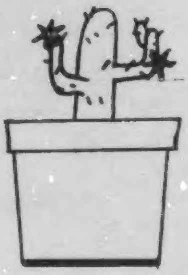
P.O. 1.10.13.01

NAME: ______________________ CLASS: __________ DATE: ________

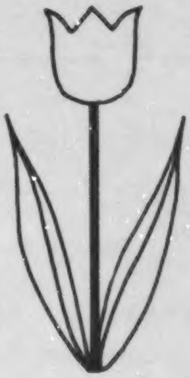
Use your centimeter ruler. Measure the dark line in each picture. Write the length on the line below each picture.



______ cm



______ cm



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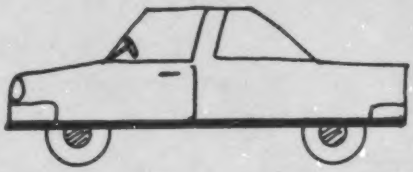
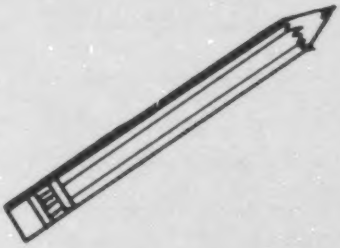
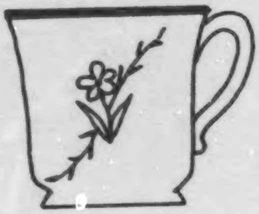


______ cm



______ cm

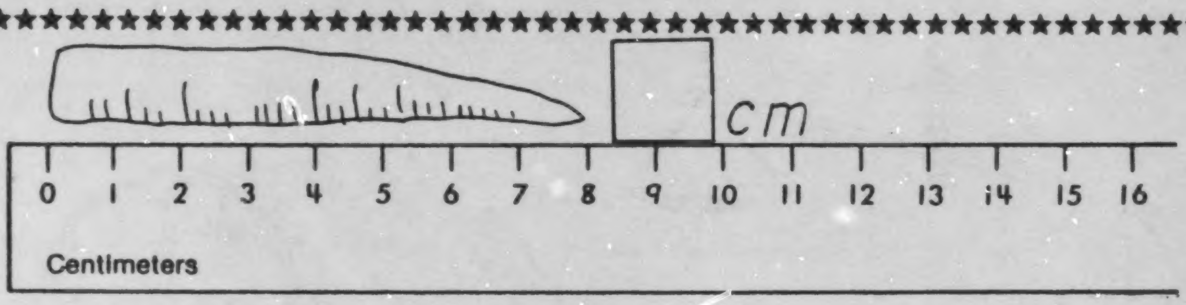


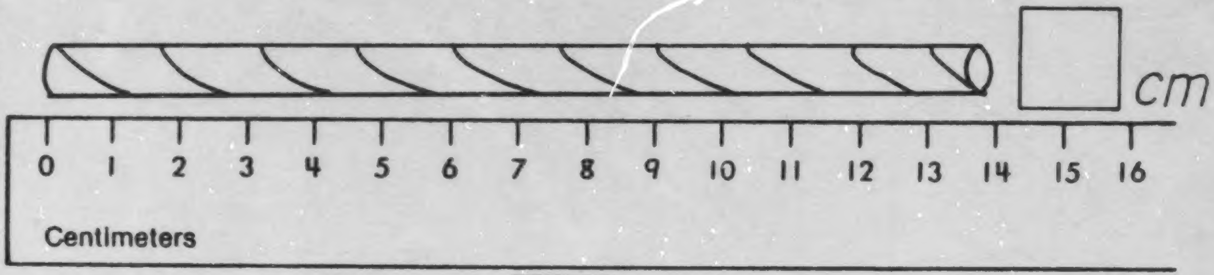
______ cm

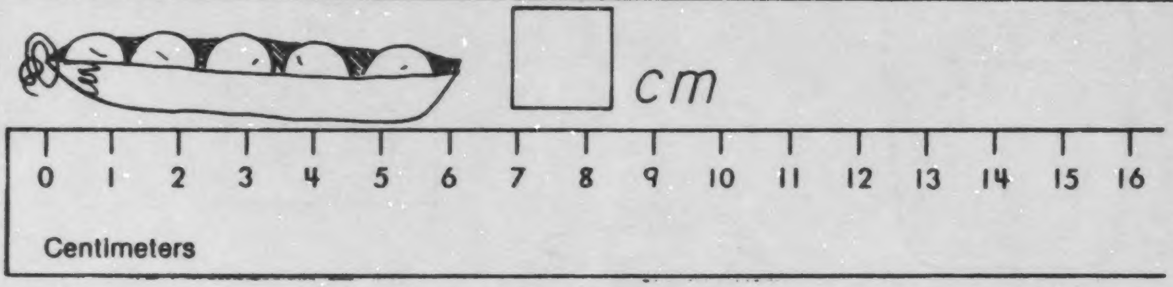
P.O. 1.10.13.02

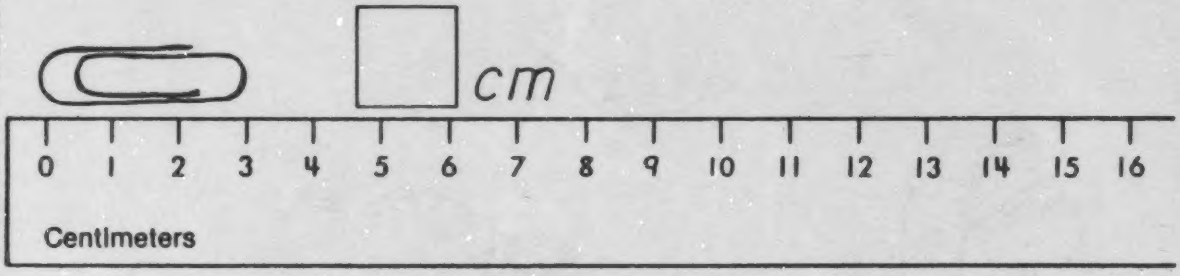
NAME: ____________________ **CLASS:** __________ **DATE:** ________

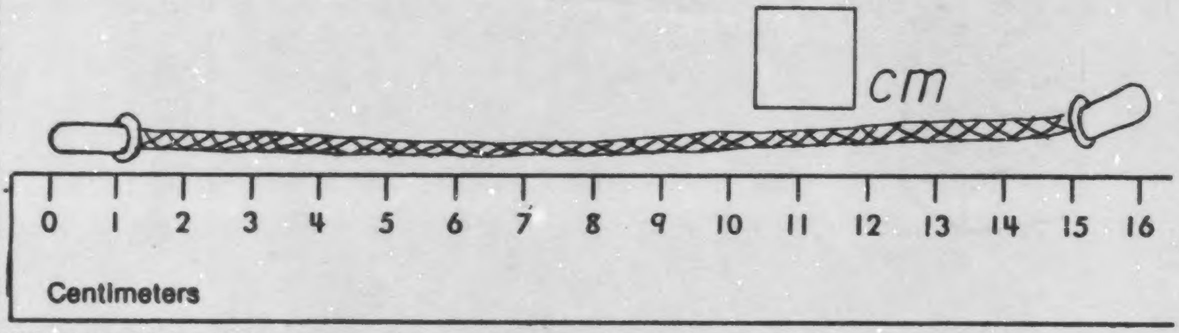
How many centimeters long is each object?


cm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Centimeters


cm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Centimeters


cm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Centimeters

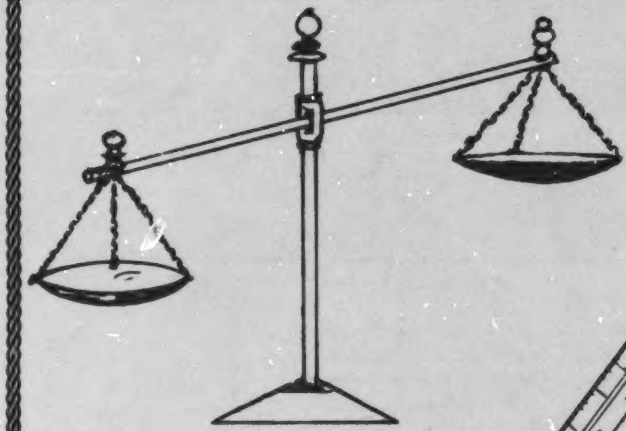

cm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Centimeters

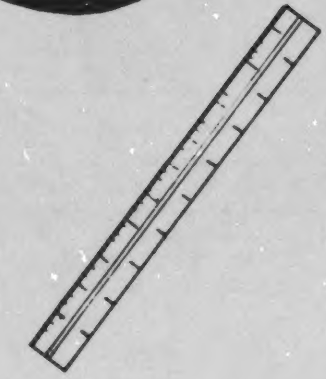

cm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Centimeters

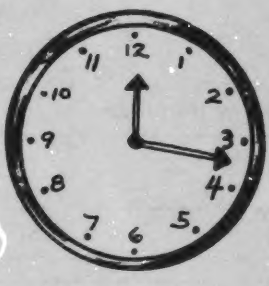
P.O. 1.10.13.03

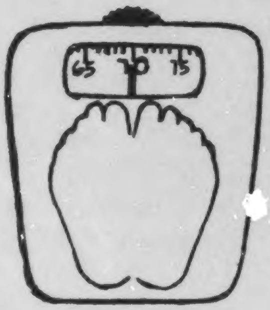
NAME: ____________________ CLASS: ________ DATE: _______

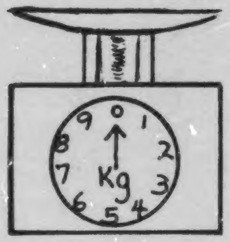
Place an X on the items which can measure weight in kilograms.

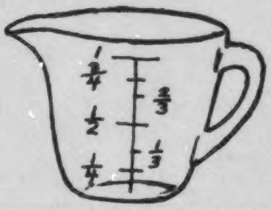


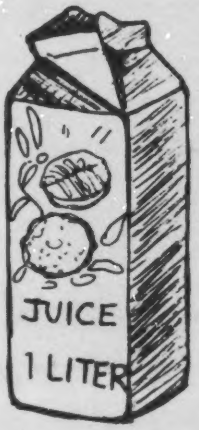


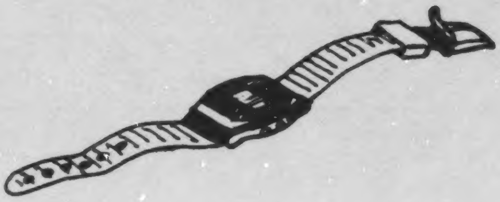

12
1
2
3
4
5
6
7
8
9
10
11

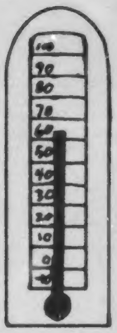



0
1
2
3
4
5
6
7
8
9
Kg


1
3/4
2/3
1/2
1/3
1/4


JUICE
1 LITER

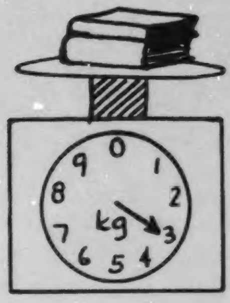



100
90
80
70
60
50
40
30
20
10
0

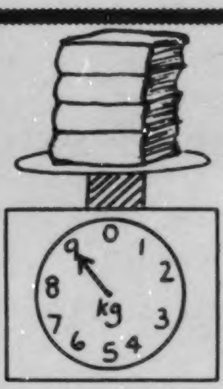
P.O. 1.10.13.04

NAME:______________________________CLASS:__________DATE:________

Read the metric scales.
Write each weight on the line.


0
1
2
3
4
5
6
7
8
9
kg

3 kg


0
1
2
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4
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6
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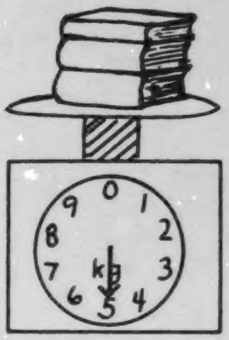
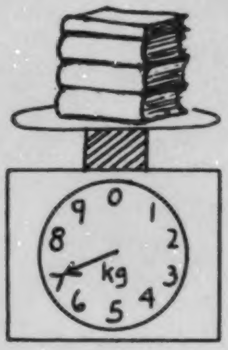
8
9
kg

______ kg


0
1
2
3
4
5
6
7
8
9
kg

______ kg


0
1
2
3
4
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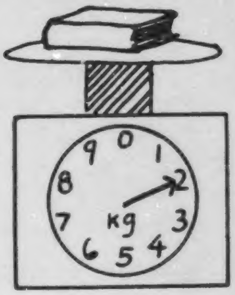
6
7
8
9
kg

______ kg


0
1
2
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4
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6
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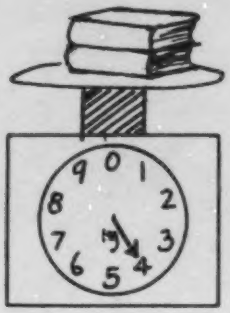
9
kg

______ kg


0
1
2
3
4
5
6
7
8
9
kg

______ kg

1.11.01 NUMBER SENTENCES

(1 lesson)

PERFORMANCE OBJECTIVES

The student will be able to...

1.11.01.01B recognize a number sentence that is true or false;

e.g.,

$1 + 2 = 3$ True $2 + 4 = 9$ False

1.11.01.02B read and complete number sentences with place holders.

e.g.,

$1 + 2 = \square$ $3 - 2 = \square$

$1 + 2 > \square$ $3 - 2 > \square$

$1 + 2 < \square$ $3 - 2 < \square$

1.11.01

VOCABULARY

TERMS

number sentence
true
false

GETTING STARTED

Prepare a spinner with the symbols plus (+) and minus (-) and a set of cards numbered 0 through 9. Display the numeral cards 6 and 1. Point the spinner to either + or -. Say, "Which operation are we using?" If the spinner points to the plus sign ask a student to identify the operation (plus) and create an addition number sentence using the 6 and the 1. e.g., 6 + 1 = 7. If the spinner points to the minus sign ask a student to identify the operation (take away), and create a subtraction sentence using the 6 and the 1. e.g., 6 -1 = 5.

Repeat this procedure using other pairs of numeral cards.

Play "Find the Lucky Number". Write the numerals 1 through 9 on the chalkboard. Say, "The lucky number is not 4 + 4." Ask a student to repeat the number sentence with the answer and cross out the 8. Say, "The lucky number is not 7 - 1, 6 - 4, 5 + 0, 9 - 0 or 2 + 3... " Continue until one number is left. That is the lucky number.

Vary this activity by asking the students to write the numerals on paper and cross out the unlucky numbers until they are left with only one number.

1.11.01

1.11.01.01 **recognize a number sentence that is true or false**

STRATEGY 1: Prepare flashcards with true and false number sentences, e.g., 5 + 2 = 4, 6 + 1 = 7, 3 + 2 = 5, 3 + 2 = 4. Write the words "True" and "False" on the chalkboard. Explain that a correct number sentence is true; a false number sentence is incorrect. Ask a student to choose a flashcard, read the sentence and tape it in the proper column on the chalkboard.

Repeat this procedure using other number sentences.

STRATEGY 2: Prepare counters and a set of flashcards consisting of true and false number sentences. Distribute counters to each student. Say, "I am going to tell you a number story. Joe has six toy cars. He found one more car. How many cars does Joe have in all?" Display two number sentence cards, one true and one false.

e.g.,

6 + 1 = 5 6 + 1 = 7

Say, "Use your counters to see which of these number sentences are true. How many cars does Joe have in all? Which sentence is true?"

Repeat this procedure with different number facts.

1.11.01.02 **read and complete number sentences with place holders**

STRATEGY 1: Prepare and display a box with numeral cards 0 through 9. Write 1 + 2 = □ on the chalkboard. Say, "This box (□) is a place holder. It is holding a place for the answer. Who can find the numeral card that goes in the place holder?" Ask a student to find the correct numeral card and tape it in the box used as the place holder.

Repeat this procedure using other examples.

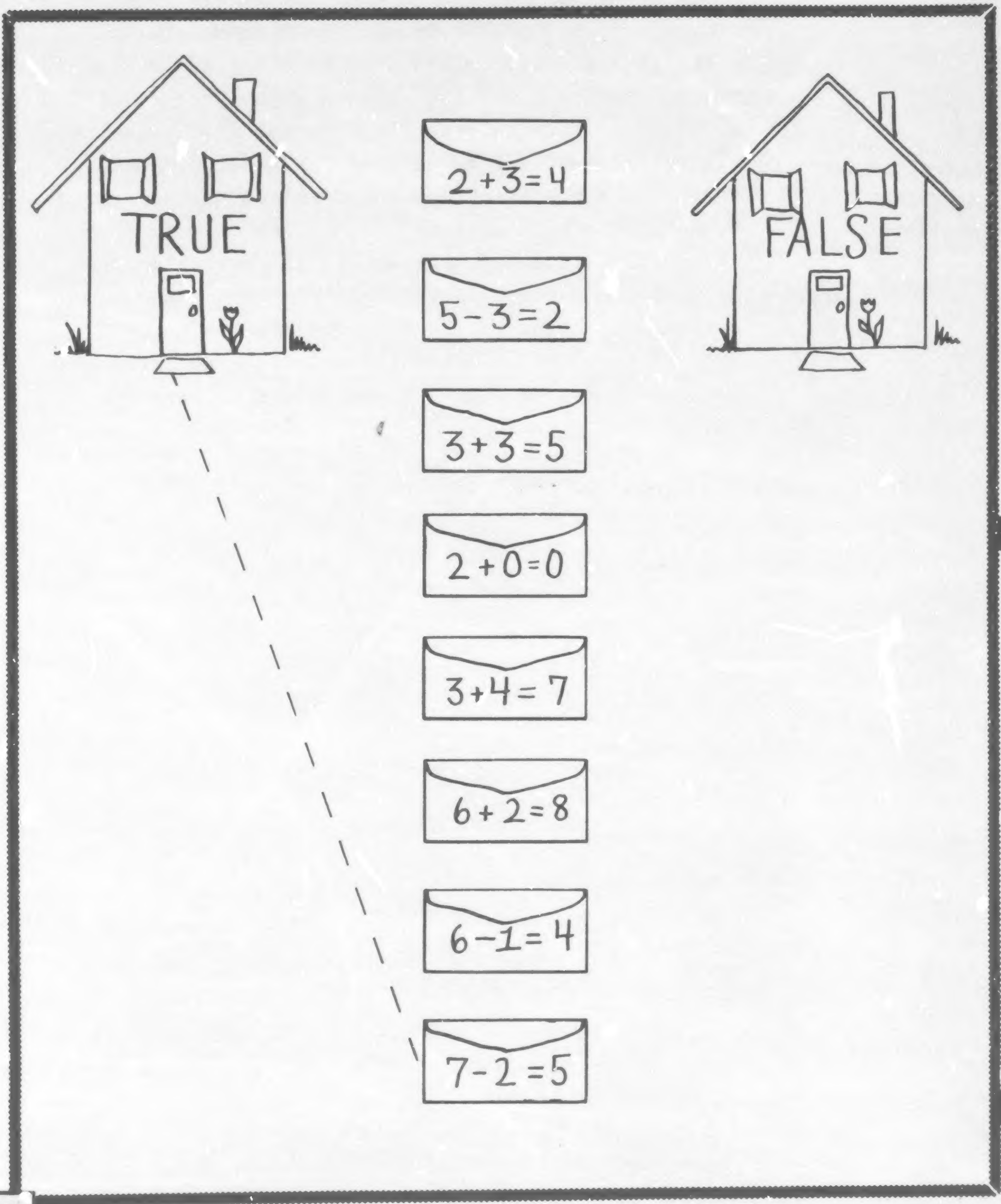
1.11.01

STRATEGY 2: Prepare four dice or four sets of cards for each group of students. Two of the dice should have numerals 0 through 9. One die should be labeled with three plus symbols and three minus symbols. The fourth die should be labeled with three equal symbols and three greater than symbols. Reverse the greater than symbol to reverse its meaning. (less than) Each player throws the dice and arranges them to make a number sentence. The other players copy the number sentence a box after the equal sign and draw in the answer. Say, "This box is a place holder. It holds a place for the answer." Then ask the students to write the answer. The first player checks the work and the dice are passed to the next student.

P.O. 1.11.01.01

NAME:______________________________ **CLASS:**__________ **DATE:**________

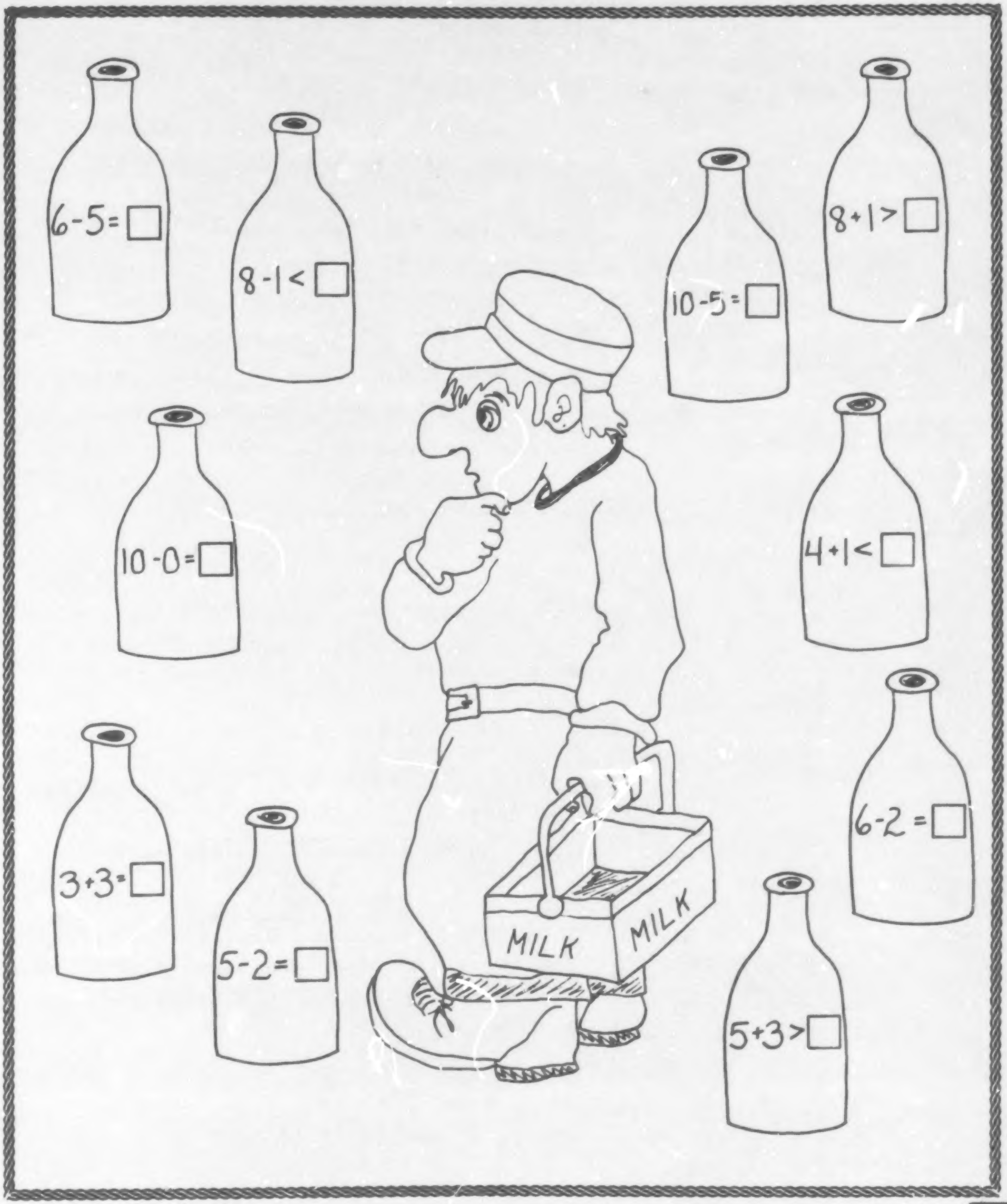
Deliver each envelope to the correct house.


TRUE
FALSE
2+3=4
5-3=2
3+3=5
2+0=0
3+4=7
6+2=8
6-1=4
7-2=5

P.O. 1.11.01.02

NAME:______________________________CLASS:__________DATE:________

Complete each number sentence to make it true.


6-5=☐
8-1<☐
10-5=☐
8+1>☐
10-0=☐
4+1<☐
3+3=☐
6-2=☐
5-2=☐
MILK
MILK
5+3>☐

Unit 42

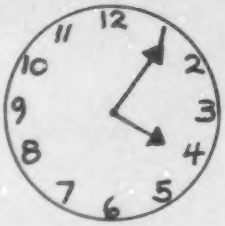
1.10.14 TIME TO THE HALF-HOUR

(1-2 lessons)

PERFORMANCE OBJECTIVES

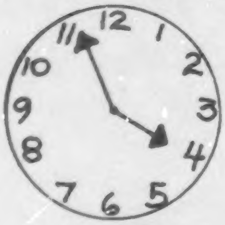
The student will be able to...

1.10.14.01B identify time "past the hour"; e.g.,



We say that it is past the hour when the large hand on the clock has moved past the 12.

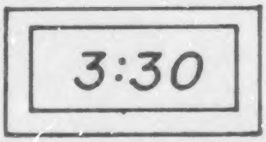
1.10.14.02B identify time "before the hour"; e.g.,

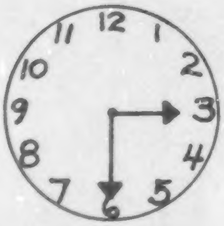


We say that it is before the hour when the large hand is close to the 12.

1.10.14.03B read time on a standard and digital clock on the half-hour.

e.g.,





What time does the clock show? Three-thirty or 30 minutes past 3.

NOTE: In this unit clock numbers 1 through 6 indicate time past the hour, clock numbers 7 through 11 indicate time before the hour.

1.10.14

VOCABULARY

TERMS

before the hour
past the hour
half-hour
minutes
thirty
half past
o'clock

GETTING STARTED

Prepare and display sets of sequence picture cards to reinforce the concepts of before and after, e.g., a box of cake mix, a cake. Ask the students which action came before and which action came after for each set of pictures.

Draw a number line with the numerals 0 through 12 on the chalkboard. Ask the students to read the numbers on the number line. Point to a number and ask individual students to read the number and identify the number that comes before or after that number. Repeat this procedure until each student has had a chance to participate.

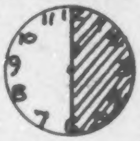
1.10.14

1.10.14.01 **identify time "past the hour"**

STRATEGY 1: Use the student worksheet provided on page 49a. Prepare and distribute small paper plates, scissors, paste and fasteners. Direct the students to cut out the clockface, paste it on the plate and attach the hands to the dot with the fastener.

Review the numerals on the clock as well as the functions of both the hour and minute hands. Say, "Who remembers where the minute hand is when the hour is just beginning? (It is on the twelve.) Who remembers where the hour hand is?" (It is on the numeral for the hour.)

Display a demonstration clock. Say, "Set your clocks at 3 o'clock. Where is the minute hand? (on the 12) We are going to move past the hour. Move your minute hand with me from the 12 to the 6. (Demonstrate.) We have gone past the hour." Cover half of the demonstration clock.
e.g.,



Say, "This part of the clock is past the hour. Take a yellow crayon and color that part of your clock. The yellow part shows past the hour."

STRATEGY 2: Prepare a large demonstration clock, clock faces and yellow crayons. Distribute clock faces and yellow crayons to each student. Say, "We are going to tell time past the hour. When the minute hand is on the numerals 1, 2, 3, 4, 5 and 6 it is past the hour. Color that part of your clock yellow. Show that it is past 4 o'clock. You may use any numeral in the yellow part of your clock. Show that it is past 6 o'clock." Ask students to show

STRATEGY 2: cont'd

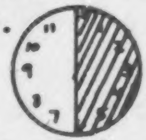
the various placements of the minute hand on their clocks. Say, "Do all the clocks show that it is past 6 o'clock? How can you tell?" (Because the minute hand is on one of the numerals 1, 2, 3, 4, 5 or 6.) Continue this procedure varying the directions. Ask individual students to display their clocks.

Say, "When it is past the hour, the hour hand also moves. It moves past the hour. Watch." (Demonstrate.) Ask the students to move their clock hands past the hour and watch the shorter hand move along.

1.10.14.02 **identify time "before the hour"**

STRATEGY 1:

Prepare and display a demonstration clock. Cover the right half. Prepare a minute and hour hand each backed with tape.
e.g.,



Say, "Look at the part of the clock that is not covered. What numbers do you see?" (7, 8, 9, 10, 11) Make sure that the students are aware that part of the numbers 6 and 12 are visible. Say, "When the minute hand is on any part of this half of the clock, we say that the time is 'before the hour'." Place the hour hand on the 2 and the minute hand on the 7. Say, "It is before 2 o'clock." Repeat this procedure until sufficient reinforcement is given. Then ask individual students to come up and show a time before the hour on the clock.

STRATEGY 2:

Prepare and distribute student clocks. Play "What's My Hour?" with the students. Say, "I will tell you a riddle and you will set your clock to

STRATEGY 2: cont'd

show time before that hour. Listen. This is a time just before we get to school. Set your clock. What time does your clock say? (before 9 o'clock) This is a time before we eat lunch. Set your clock. What time is it? (before 12 o'clock) What numerals say before the hour? (7,8,9,10,11) What is a time just before we leave school? Set your clocks. What time does your clock show?" (before 3 o'clock) Continue this procedure. Ask different students to display their clocks.

1.10.14.03 **read time on a standard digital clock on the half-hour**

STRATEGY 1: Prepare and distribute clocks to each student. On a demonstration clock show 9 o'clock. Write 9:00 on the chalkboard. Place a semi-circle over the right side of the clock. Say, "I have covered half of the clock. Point to the side I have covered on your clocks. Move the hour hand to 9 and the minute hand from the 12 to the 6. (Demonstrate.) We have moved the minute hand half-way around the clock. We say it is half-past the hour. (Write half-past 9 on the chalkboard.) It is half-past 9. We can also say that it is 9:30. (Write 9:30 on the chalkboard.) See if your hour hand is half-way between the 9 and the 10." Repeat this procedure, directing the students to show various times on their clocks, e.g., half-past eight, 7:30, half-past 12, 6:30, ...

Say, "Are all clocks the same?" Discuss the different kinds of clocks. If possible, show the students a digital clock and explain that the time is shown in numbers which drop every minute. Say, "The numbers on the digital clock look like the

STRATEGY 1: cont'd

ones we have written on the chalkboard, e.g., 6:30, 8:30, ...

STRATEGY 2:

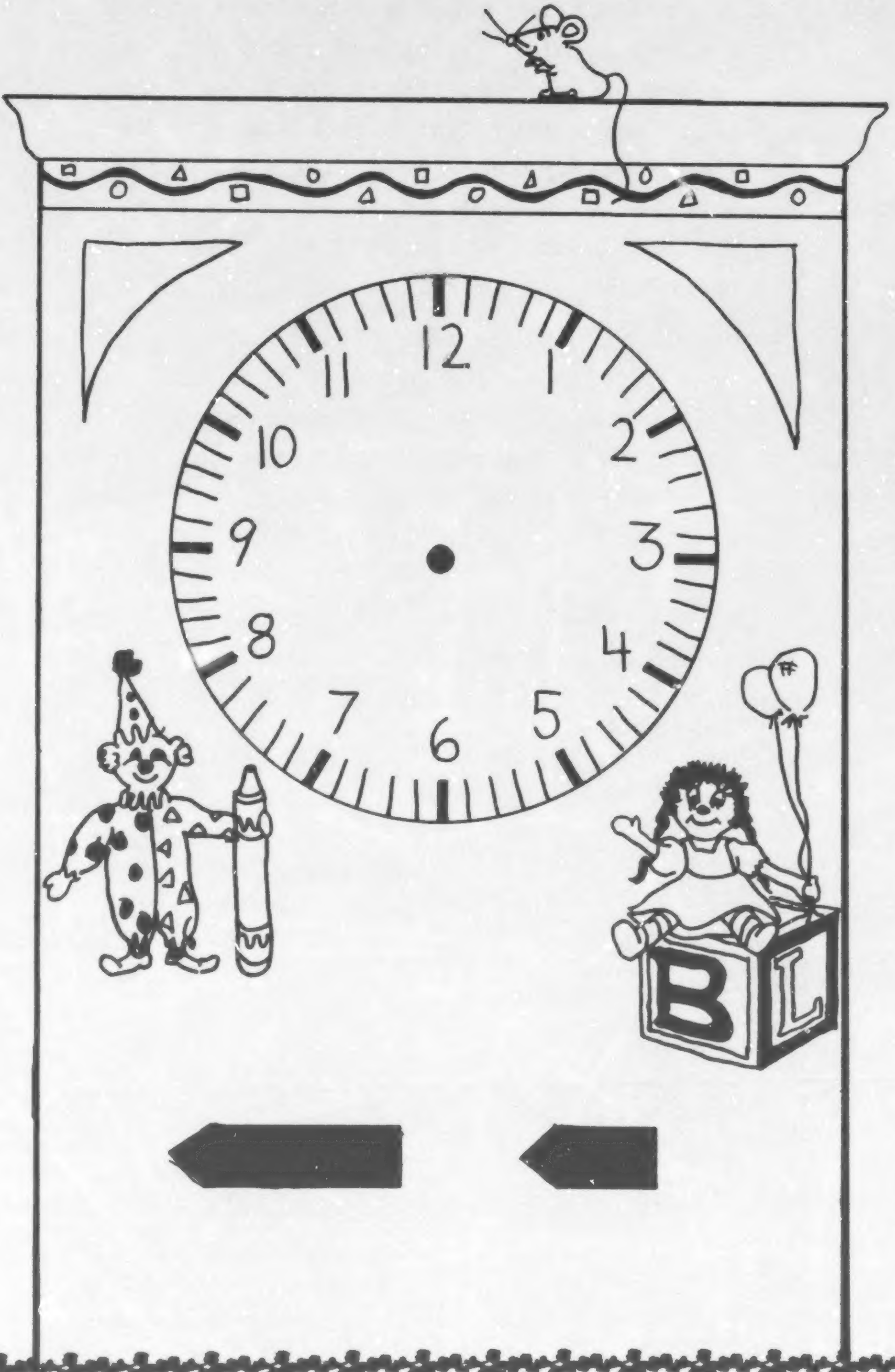
Prepare drawing paper and a clockface stamp. Fold the paper into fourths and stamp a clockface in each section. Distribute the paper. Point to the first box. Say, "Let's show the time we get on line each morning. What time is that? (half-past 8) Where will we draw the hands?" (Make sure that the hour hand is between the 8 and 9.) Repeat this procedure for other times.

Display a picture of a digital clock. Say, "There is a different kind of clock that tells us the time without using hands. It shows only numerals. It is called a digital clock." Ask the students to write the digital time under each standard clockface on their paper.

P.O. 1.10.14.01

NAME:______________________________ CLASS:__________ DATE:________

Cut out the arrows. Use them as the hands of the clock to identify time past the hour.


12
1
2
3
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6
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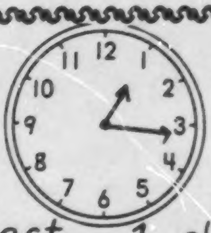
9
10
11
B
L

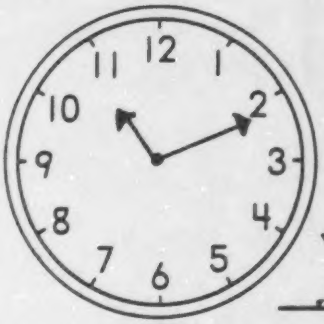
P.O. 1.10.14.01

NAME: ______________________ CLASS: ________ DATE: ________

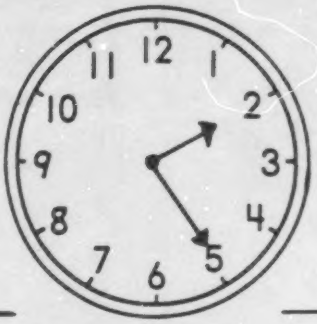
Put an X near each clock which shows the time past the hour.

Melissa said, "Hurry up. The movie started at 1 o clock. It is past 1 o'clock."





X



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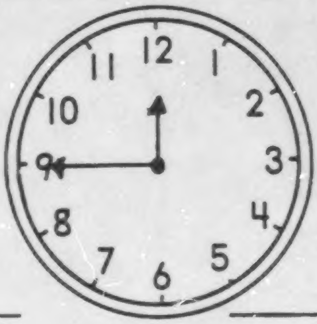

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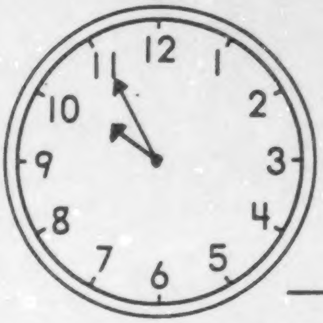

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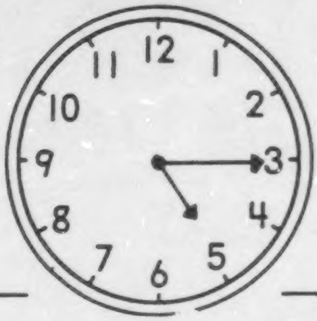

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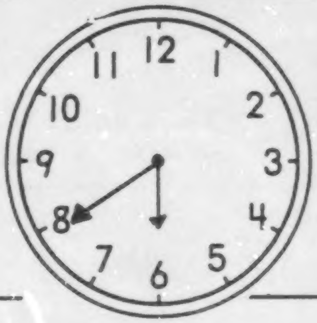
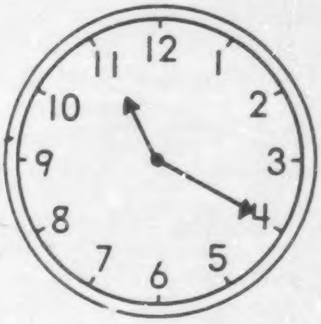
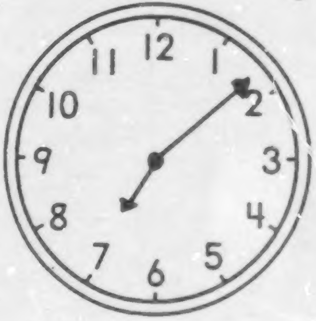


______

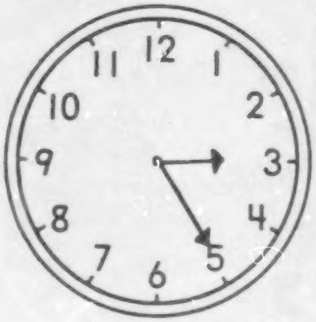
Fill in the blank with the missing numeral.



It is past ___ o'clock.



It is past ___ o'clock.

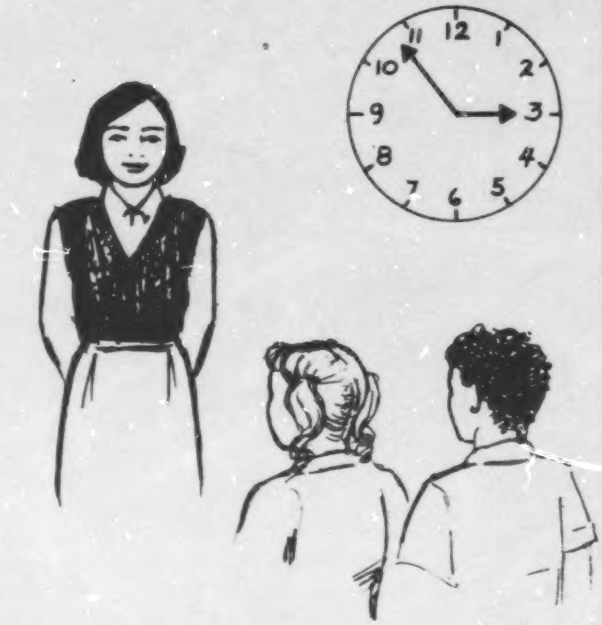


It is past ___ o'clock.

P.O. 1.10.14.02

NAME:______________________________ CLASS:__________ DATE:________

Fill in the missing time.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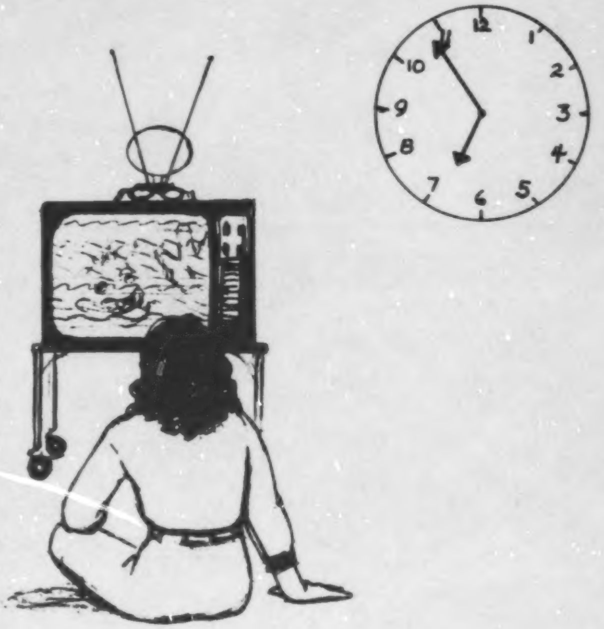
It is before___o'clock.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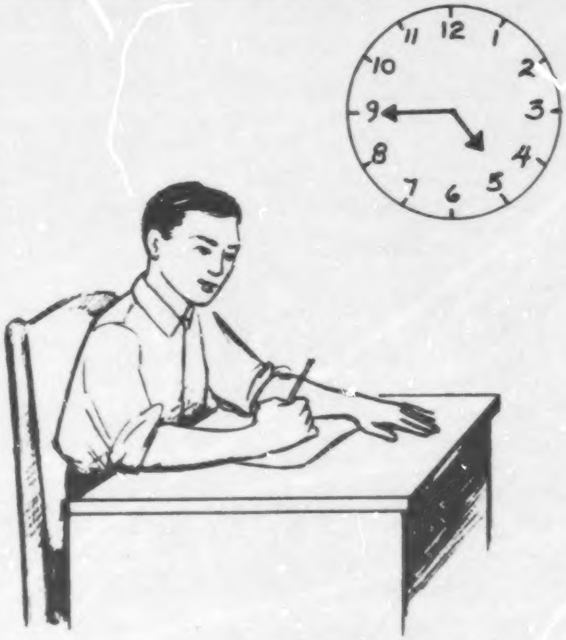
It is before___o'clock.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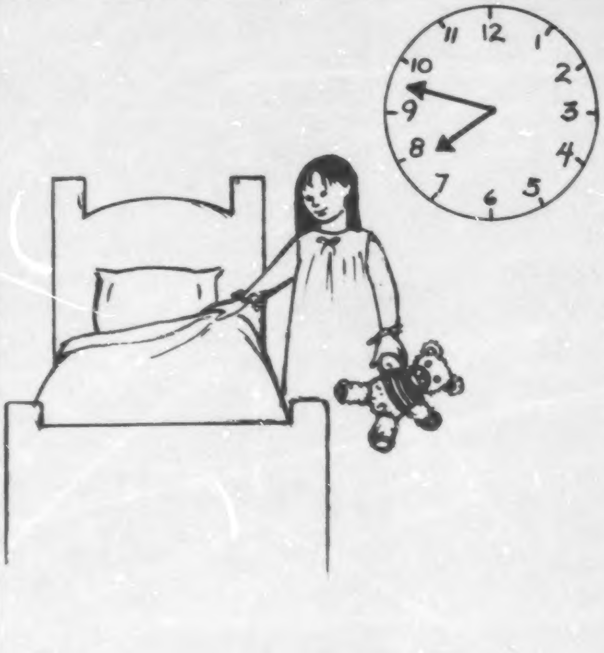
It is before___o'clock.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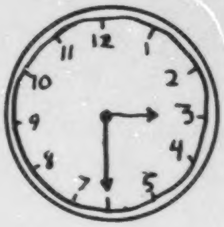
It is before___o'clock.

P.O. 1.10.14.03

NAME:____________________ CLASS:________ DATE:_______

Circle the correct time.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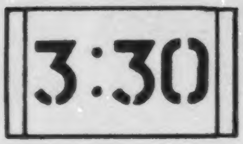
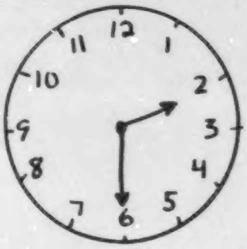
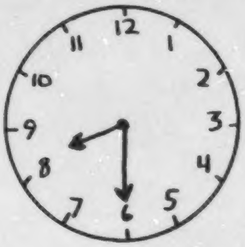
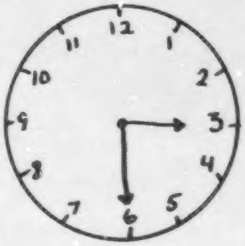




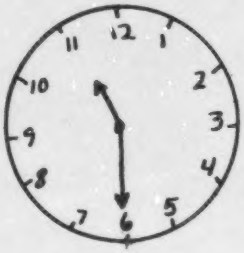
2:30 6:30 12:30



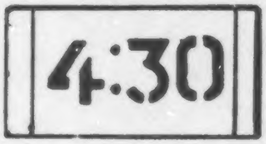
7:30 8:30 10:30



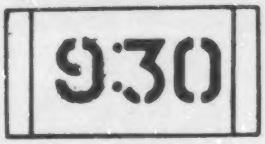
3:30 4:30 1:30



12:30 10:30 11:30



3:30 5:30 4:30



11:30 1:30 9:30

1.06.01 HALVES

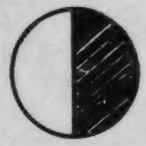
(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

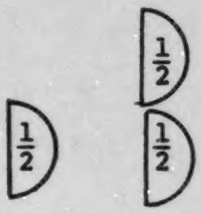
1.06.01.01B separate representative objects into halves;

e.g.,



1.06.01.02B identify, write and record the symbol for one-half as $\frac{1}{2}$, for two-halves as $\frac{2}{2}$;

e.g.,



$= \frac{1}{2}$

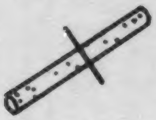
$= \frac{2}{2}$

1.06.01.03B solve story problems related to skills learned in this module.

e.g.,

If Mary and Marsha want to share a pretzel stick equally, what must they do?

Divide the pretzel stick into two equal parts.



1.06.01

VOCABULARY

TERMS	SYMBOLS
half	$\frac{1}{2}$
two-halves	$\frac{2}{2}$
equal	=
whole	

GETTING STARTED

Prepare and distribute an envelope, containing pictures that have been cut up into several pieces, to groups of students. Ask the students to put the pieces back together to make a complete picture.

Repeat the procedure asking groups to exchange envelopes.

Prepare and distribute to each group of two students an even number of counters (chips, sticks, cubes). Ask one of the students in each group to share the counters with his/her partner. After the objects have been shared, say, "Does each person have the same number of counters?"

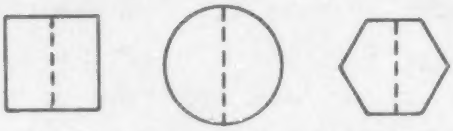
Distribute a different even number of counters and repeat this procedure.

1.06.01

1.06.01.01 **separate representative objects into halves**

STRATEGY 1: Prepare and distribute scissors and several papers of different sizes and shapes which have been folded into halves. Ask the students to take the square paper and cut it along the fold. Say, "What do we have? (2 pieces of paper) Place one piece on top of the other. The two parts are the same size and shape. They are two equal parts." Repeat this procedure with the other sheets of paper.

e.g.,



STRATEGY 2: Prepare and display several objects, e.g., an apple, a cookie, a cardboard egg carton... Hold up the apple and say, "If I wanted to equally share this apple with my friend, what would I have to do?"

Cut the apple into two equal parts and say, "What do I now have? Are the two pieces the same size? The two parts are equal. Each piece is one half of the apple."

Repeat this procedure with the other objects.

1.06.01.02 **identify, write and record the symbol for one-half as $\frac{1}{2}$, for two-halves as $\frac{2}{2}$**

STRATEGY 1: Prepare and distribute paper and crayons to each student. Draw a circle divided into two equal parts on the chalkboard. Say, "How many parts do you see? Are both parts equal?" Shade in one of the parts and say, "How many parts are shaded? One of the two equal parts is shaded. We say that one-half is shaded." Write $\frac{1}{2}$ on the shaded half of the circle and say, "How many parts are not shaded? Is

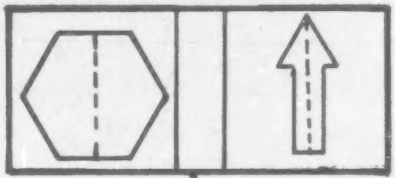
STRATEGY 1: cont'd

it the same size as the shaded part? What can I write on that part? Why? I now have two halves which can be written as $\frac{2}{2}$. Write $\frac{2}{2}$ under the circle." Ask the students to draw a circle on their paper and repeat the procedure as described above.

STRATEGY 2:

Prepare and display oaktag pictures of symmetrical objects on the chalkboard ledge. Cut each picture in half. Place the picture halves along the chalkboard ledge so that no picture is standing next to its other half.

e.g.,



Choose one half ($\frac{1}{2}$) of one picture. Hold it up and say, "Who can find the other half of this picture to make it complete? Who can find two parts that when matched make a whole picture? How many equal parts do we need to make a whole picture? We call each equal part of the picture one-half. Why?" Write $\frac{1}{2}$ on the chalkboard. Say, "This is the way we write one-half. When we have both halves of the picture we can say we have two halves." Write $\frac{2}{2}$ on the chalkboard.

Continue this procedure with the other pictures.

1.06.01.03 **solve story problems related to skills learned in this module**

STRATEGY 1:

Draw an apple on the chalkboard and say, "James bought an apple. He is going to share the apple with his friend, Robert. How is James going to

STRATEGY 1: cont'd

share his apple?" Ask a student to come up to the chalkboard and divide the apple evenly. Say, "How many parts do you see? Is each part the same? What is each part called?" (one half) Ask a student to write the symbol for each half ($\frac{1}{2}$) under each part of the apple.

Repeat this procedure using other objects.

STRATEGY 2:

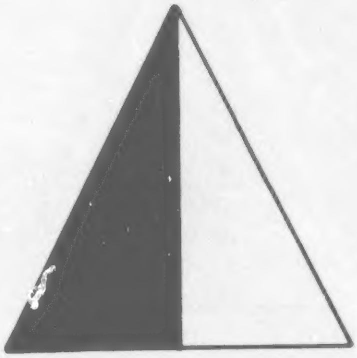
Prepare pictures of various objects. (e.g., apple, cupcake, sandwich...) Cut each picture into two equal parts and place all of the halves on the chalkboard ledge. Say, "John was not very hungry. He ate only part of his cupcake. Who can come up and find the picture that shows how much John ate? What do we call that part? ($\frac{1}{2}$) Mike decided to eat the other part. Who can come up and find the part Mike ate? What do we call that part? ($\frac{1}{2}$) If we put both halves together (demonstrate) how many halves do we have?" ($\frac{2}{2}$)

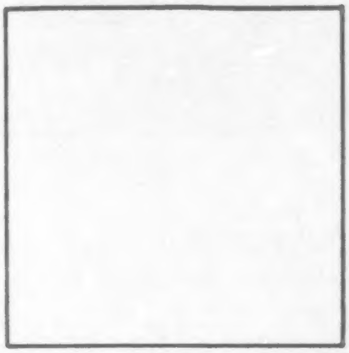
Repeat this procedure relating different stories to the other picture cards.

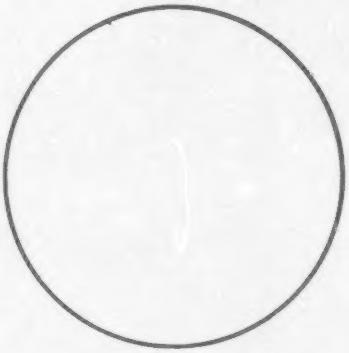
P.O. 1.06.01.01

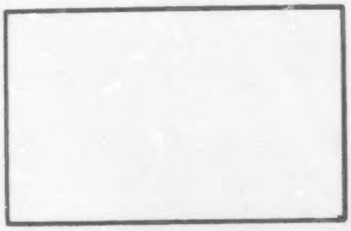
NAME:____**CLASS:**__________**DATE:**__________

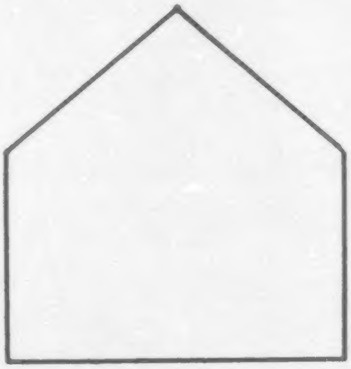
Draw a line to separate each object into halves.
Color one half red.







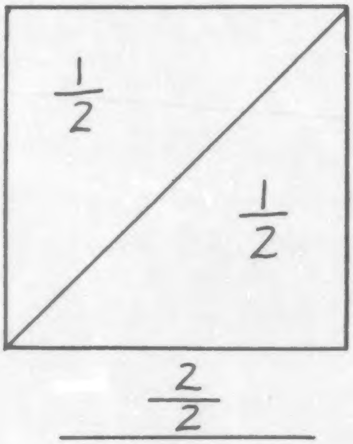


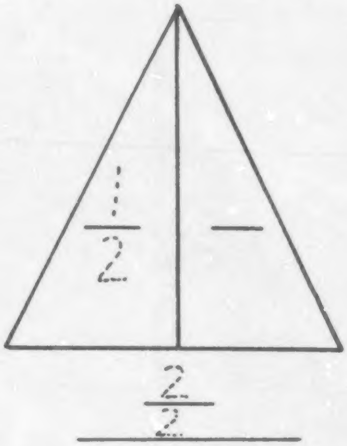


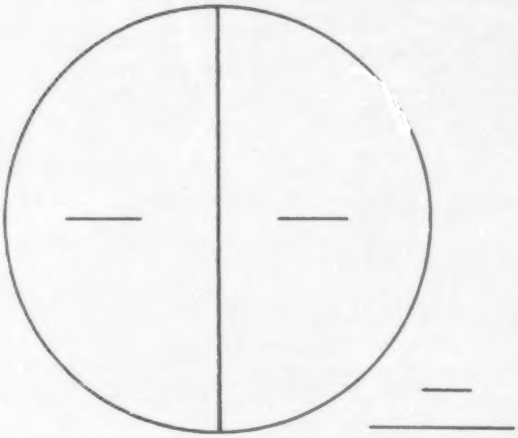
P.O. 1.06.01.02

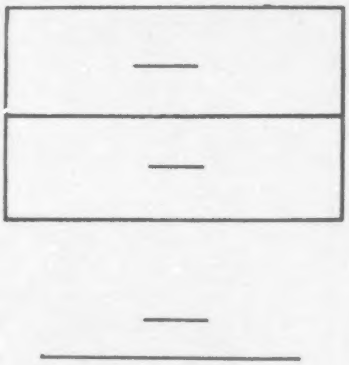
NAME: ______________________ CLASS: __________ DATE: ________

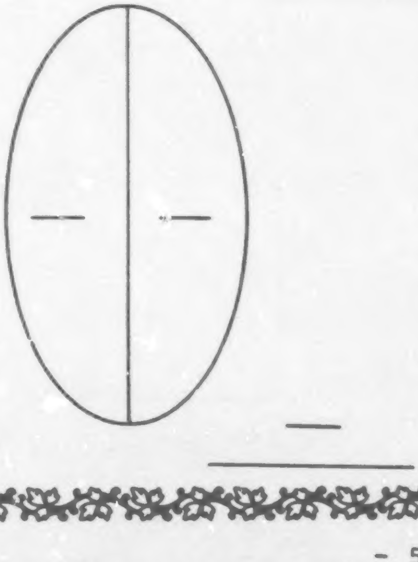
Look at each shape. Label each part.
Write the symbol for the whole picture.
Color one half of each shape blue and one half red.

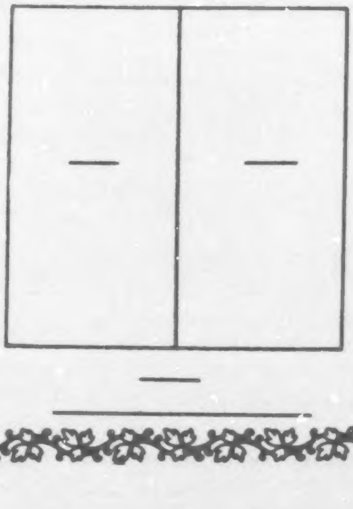








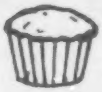
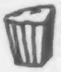


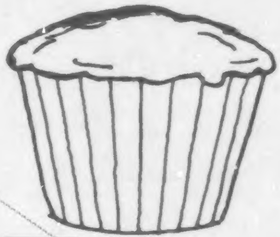


P.O. 1.06.01.03

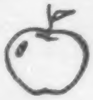
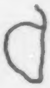
NAME: ____________________ CLASS: ________ DATE: ________

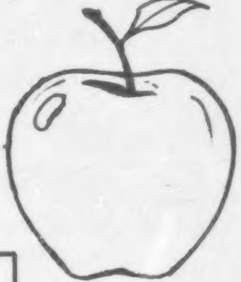
Read and solve each story problem.

Tom has a .
He gave  to John.
Color the part Tom has left.

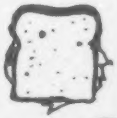
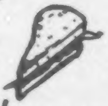


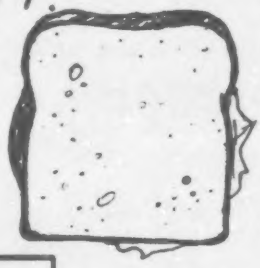
Tom has $\boxed{\frac{1}{2}}$.
John has $\boxed{\frac{1}{2}}$.

I have an .
I gave  to my sister.
Color the part I have left.

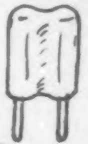
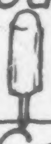


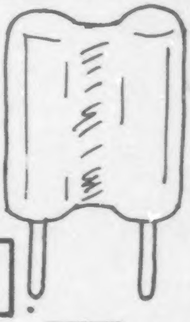
I have ☐.
My sister has ☐.

I brought a  to school. I gave  to Sue. Color the part I have left.



I have ☐.
Sue has ☐.

Father bought a .
He gave  to my sister. Color the part father has left.



Father has ☐.
My sister has ☐.

Unit 44

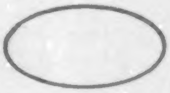
1.01.12 THE NUMERAL ZERO (0)

(1 lesson)

PERFORMANCE OBJECTIVES

The student will be able to...

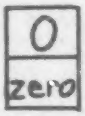
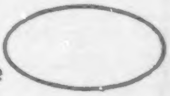
1.01.12.01A associate the numeral 0 with a group (set, lot, bunch, heap, pile) having no objects;
e.g.,

The numeral 0 shows how many objects are inside the oval. 

1.01.12.02A recognize, identify and write the symbol 0 as a numeral for the number zero;
e.g.,

8, 6, 0, 5, 2

1.01.12.03B match the number word zero to the numeral 0 and to a group (set, lot, bunch, heap, pile) having no objects.
e.g.,

The numeral card  shows how many objects are inside the oval. 

1.01.12

VOCABULARY

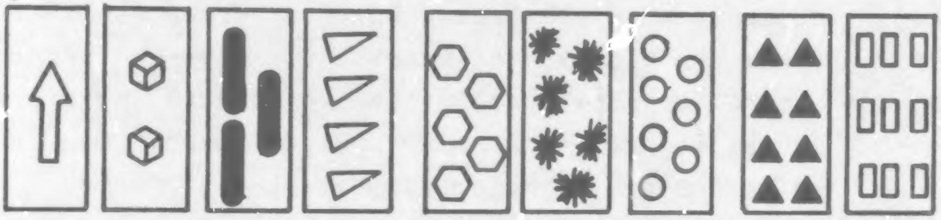
TERMS	SYMBOLS
zero	0

GETTING STARTED

Prepare and distribute picture cards showing one through nine objects to each student. Write a numeral (9) on the chalkboard. Point to it and say, "Hold up the card that shows a group of nine."

Repeat this procedure with all the cards.

e.g.,



Assign each student a numeral from 1 through 9. Ask the students to form a circle. Place an eraser in the center.

Say, "I am going to call a numeral. If I call your numeral, run to the center, grab the eraser and run back to your spot." Return the eraser. Keep a tally sheet. The student with the most points is the winner.

1.01.12

1.01.12.01 **associate the numeral 0 with a group (set, lot, bunch, heap, pile) having no objects**

STRATEGY 1: Prepare and display a flannelboard and various flannelboard cutouts in groups of one to five. Put a string around one of the groups. Say, "How many objects are in this group?" Repeat this procedure with the other groups. Remove the cutouts from the flannelboard, leaving the string. Say, "How many objects are in this group?" Explain to the students that none means that the group has no members. Display the numeral 0. Say, "We use this numeral to show that we have no objects (none). It is called zero." Display several boxes, some of which contain no objects. Have the students identify the number of objects in each box. When a box containing no objects is identified, the student will place a 0 numeral card next to it.

STRATEGY 2: Say, "How many real lions are in our classroom? How many real cows are in our classroom? ...?" Elicit the response 'none' or 'there are no real lions (cows...) in our classroom'. Write the numeral 0 on the chalkboard. Say, "The number of lions in our classroom is zero." Point to the numeral 0. Have the students repeat the word zero. Display numeral cards 0 through 5 on the chalkboard ledge. Ask the students to tell how many of the following objects are in the classroom: doors, windows, closets, ladders, televisions... (Be sure to include objects which are not present in the classroom.) Ask the students to associate the numeral cards with each object counted.

1.01.12

1.01.12.02 **recognize, identify and write the symbol 0 as a numeral for the number zero**

STRATEGY 1: Prepare numeral cards 0 through 5, an empty jar and five marbles. Display the empty jar. Say, "How many marbles are in this jar?" Elicit some of the synonyms for none (nothing, empty, zero). Write and point to the numeral 0 on the chalkboard. Say, "What numeral is this?" Have the children trace it in the air.

Display numeral cards (0-5) along the chalkboard ledge. Place marbles in the jar and ask students to select the numeral card which represents the number of marbles in the jar. Continue this procedure displaying zero through five marbles.

STRATEGY 2: Prepare a set of cards numbered 0 through 5, a magnetic board and five magnetic discs. Place two discs on the magnetic board. Say, "How many discs do you see?" (2) Ask a student to select the corresponding numeral card and hold it up for the class to see. Remove the discs from the magnetic board and ask the student to replace the numeral card. Say, "How many discs are there now?" Hold up the 0 numeral card. Say, "The numeral 0 shows us that there are no discs on the magnetic board." Demonstrate how to write a 0. Ask students to trace it in the air. Ask a student to write the numeral 0 on the chalkboard.

Randomly choose a numeral card from 0 through 5 and ask a student to put that many discs on the magnetic board. Ask another student to count those discs and write the numeral on the chalkboard.

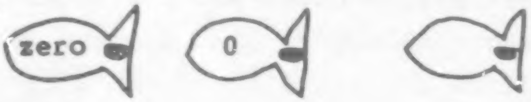
1.01.12

1.01.12.03 **match the number word zero to the numeral 0 and to the group (set, lot, bunch, heap, pile) having no objects**

STRATEGY 1: Prepare six opaque containers with lids, discs, numeral and number word cards for zero through five. Display the containers and place one disc in the first container, two discs in the second container, ...five discs in the fifth container. One container will be empty. Display numeral and number word cards zero through five. Hold up the container and say, "Who would like to guess how many discs are in this container?" Encourage the students to shake the containers before they make a guess. After the student has made a guess, open the container and ask the students to count the number of discs. Direct the students to find the numeral and number word card that corresponds to the number of discs in the container. Repeat this procedure for each container.

STRATEGY 2: Prepare and display three sets of fish-shaped flashcards - set one with the number words zero through nine, set two with the numerals 0 through 9 and set three with pictures which represent groups of 0 through 9 objects. Put each set in a different box and place a paper clip on each card. Make three fishing rods using a stick with string and attach a magnet to the end of the string. Each student gets three chances to fish for a card from each group to make a match.

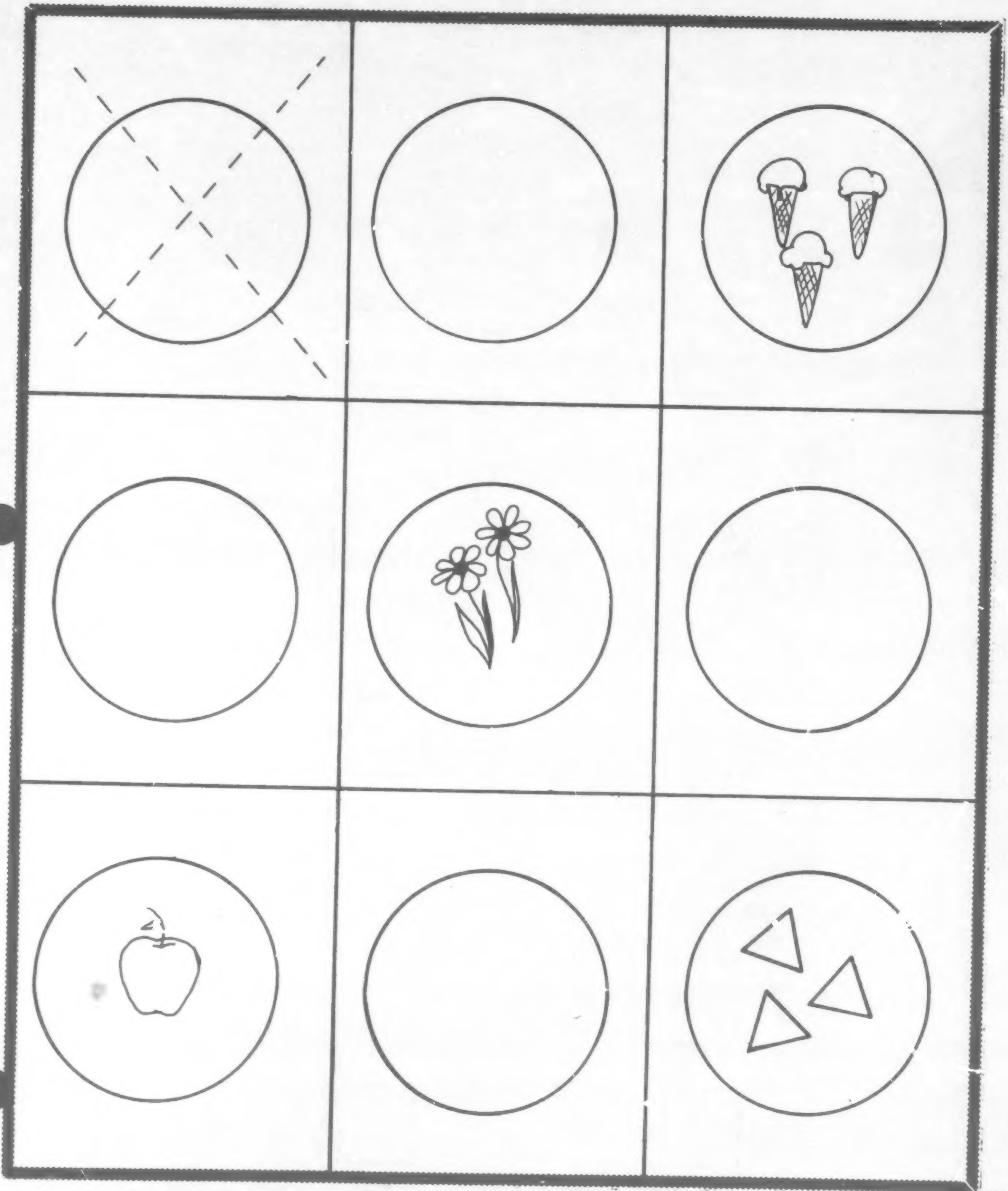
e.g.,



P.O. 1.01.12.01

NAME:____________________ CLASS:________ DATE:________

Place an X on the groups that have no objects.

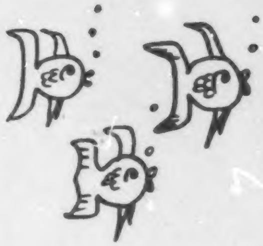


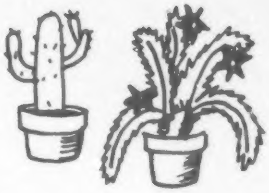
P.O. 1.01.12.02

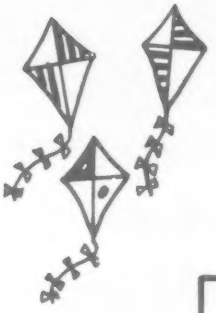
NAME: ______________________ CLASS: __________ DATE: ________

Write the correct numeral in each box.

0



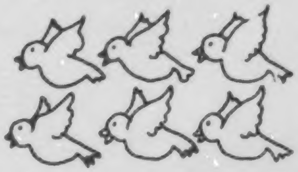




P.O. 1.01.12.03

NAME: ____________________ CLASS: ________ DATE: ________

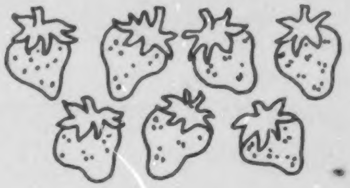
Count the number of objects in each box.
Write the numeral. Circle the number word.



6

[✓ six] zero one

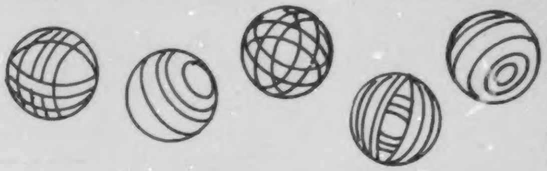
one zero eight



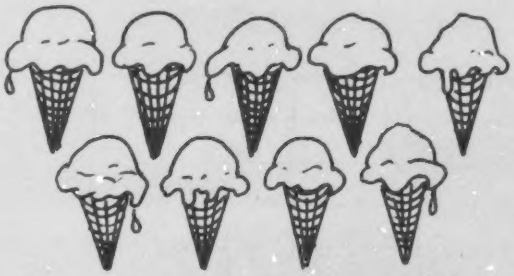
zero seven four

eight nine zero

one zero six



five two nine



zero nine eight

zero seven one

1.12.02 BAR GRAPHS

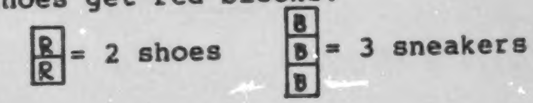
(2-3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

1.12.02.01B color the corresponding number of squares on vertical or horizontal bar graphs, when given concrete objects or the pictorial representation;

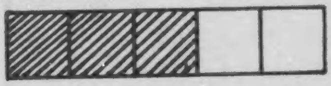
e.g., Students wearing sneakers get blue blocks, students wearing shoes get red blocks.



= 2 shoes = 3 sneakers

1.12.02.02B identify and record the number of squares that are colored on a bar graph;

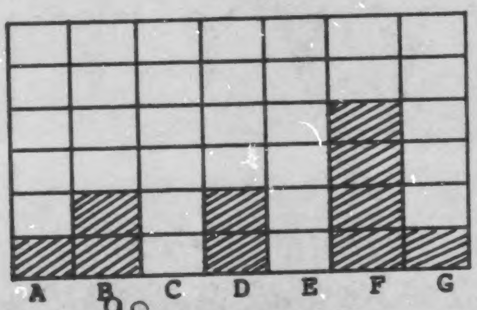
e.g., How many shaded squares are there?



= 3

1.12.02.03B gather, organize and record data based on personal or group experiences to complete a bar graph using one-to-one correspondence.

e.g., Beginning Letters in Names



1.12.02

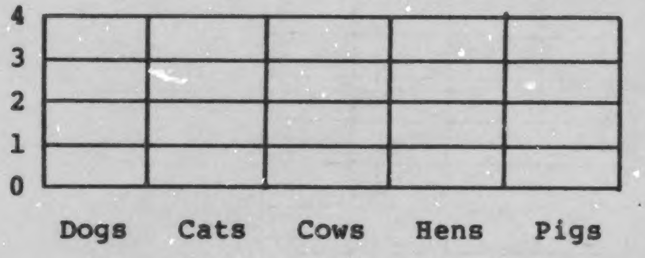
VOCABULARY

TERMS

bar graph

GETTING STARTED

Display a large sheet of graph paper on the chalkboard.

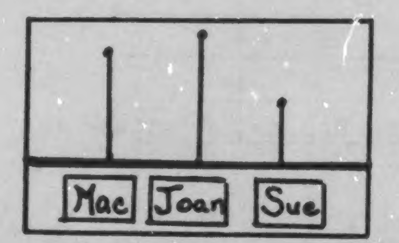


Prepare and distribute animal pictures. Name an animal and ask the students holding a picture of that animal to come up to the chart and tape the picture in the correct column. When the graph is completed, ask the students to determine how many dogs, cats, ... are on the farm.

Have a jump competition. Mark a spot on the floor where the students begin. Ask one student to mark the spot where each student lands. Cut a piece of yarn equal to the length of each students jump. Place each student's name on the chalkboard ledge and tape his/her string to the chalkboard above the name.

Have the students use a nonstandard unit of measure (e.g., pencil) and determine the length of their jump. The students will record the length of their jump on their name cards and determine who jumped the farthest.

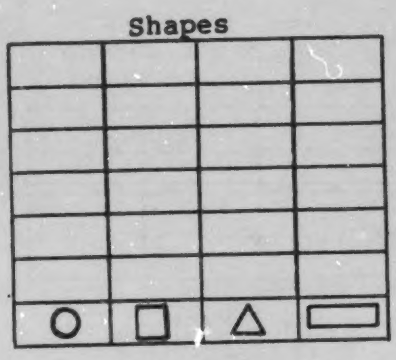
e.g.,



1.12.02

1.12.02.01 color the corresponding numbers of squares on vertical or horizontal bar graphs, when given concrete objects or the pictorial representation

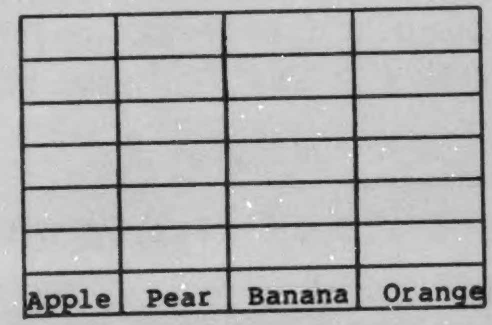
STRATEGY 1: Prepare and display a large sheet of graph paper. e.g.,



Display a flannelboard with randomly scattered shapes (e.g.,○,□,△,▭ .) Ask a student to count the number of circles on the flannelboard. Say, "How can we show the number of circles on our chart?" Ask a student to shade in the appropriate number of boxes in the column for circles.

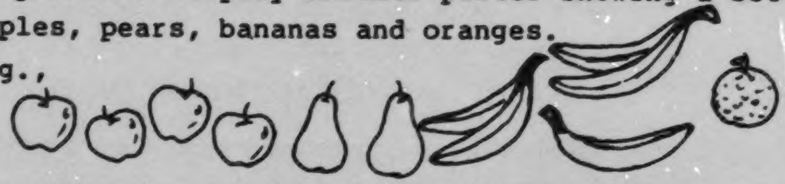
Repeat this procedure for the other shapes. When the graph has been completed, say, "This is called a bar graph. It gives us information. What kind of information did we put on our graph?"

STRATEGY 2: Prepare and display the following chart. e.g.,



STRATEGY 2: cont'd

Prepare and display another poster showing a set of apples, pears, bananas and oranges.
e.g.,



Say, "How many apples are there? ...pears? ...bananas? ...oranges?" Point to the graph and say, "We are going to make a bar graph. It gives us information. We are going to put information about the fruit on the graph. Can anyone tell us how we can show the number of apples on the graph?" Use a red crayon to color in the corresponding number of spaces in the apple columns. Say, "Which fruit do we have the most of? How can you tell? Which fruit do we have the least of? How can you tell?"

Continue this procedure for the other fruits using yellow for the banana, green for the pear and orange for the orange.

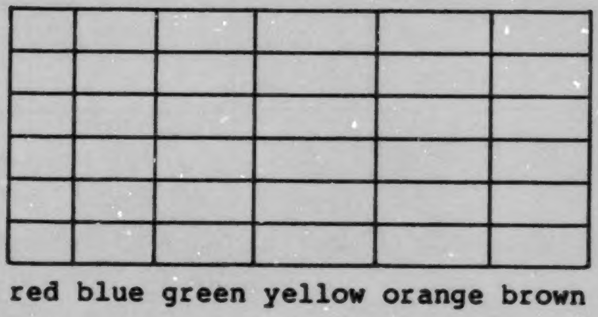
1.12.02.02 **identify and record the number of squares that are colored on a bar graph**

STRATEGY 1: Prepare and display a bar graph labeled "Jars of Paint" and a chart labeled "Jars of Paint".
e.g.,

Jars of Paint Chart

No. of Jars	Color
	red
	blue
	green
	yellow
	orange
	brown

Jars of Paint Graph



Say, "What does a bar graph tell us? (information) Let's look at this bar graph. What can we find out from this graph?" Point to the chart and say, "How

STRATEGY 1: cont'd

many jars of red paint do we have in our closet? Now, let's look at the graph." Ask a student to come up to the graph and count the number of boxes shaded. Record this number on the chart.

Repeat this procedure with the remaining colors.

STRATEGY 2: Prepare and display a birthday chart.

e.g.,

Birthday Chart

Month	No. of Children
Jan.	
Feb.	
Mar.	
Apr.	
May	
Jun.	
Jul.	
Aug.	
Sep.	
Oct.	
Nov.	
Dec.	

Birthday Graph

JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.

Say, "Every month we celebrate birthdays. Let's look at our Birthday Graph and see what we can find out. What is the first month of the year? Who celebrates their birthday in January? How many

STRATEGY 2: cont'd

birthdays do we celebrate in January?" Record the information on the birthday chart. Repeat this procedure for each month. Say, "Which month has the greatest number of birthdays? Which month has the least number of birthdays? In which months do two children celebrate birthdays? What other information can we find out from our graph?"

1.12.02.03 **gather, organize and record data based on personal or group experiences to complete a bar graph using one-to-one correspondence**

STRATEGY 1: Prepare red, black, brown and white counting blocks to represent strawberry, chocolate chip, chocolate and vanilla ice cream, a large bar graph and an ice cream tally chart.

e.g.,

TALLY CHART

Flavor	Number
Strawberry	
Choc. Chip	
Chocolate	
Vanilla	

FAVORITE ICE CREAM

5			
4			
3			
2			
1			

Straw. Choc. Chip Choc. Van.
Flavors of Ice Cream

Say, "Let's make a bar graph to find out which ice cream flavor is most popular in our class. Select the color block that shows your favorite ice cream flavor. Color in one square of your favorite flavor on the bar graph." Ask a student to choose his/her block and say, "What flavor did you choose?" Ask him/her to come to the chalkboard to show his/her selection. Repeat this procedure until every student has participated. Record the number counted for each flavor.

1.12.02

STRATEGY 2: Prepare and display a large color tally chart and a large bar graph. Distribute one crayon to each student. Vary the colors distributed.

TALLY CHART

Color	Number
red	
green	
orange	
yellow	
blue	
brown	

COLORS

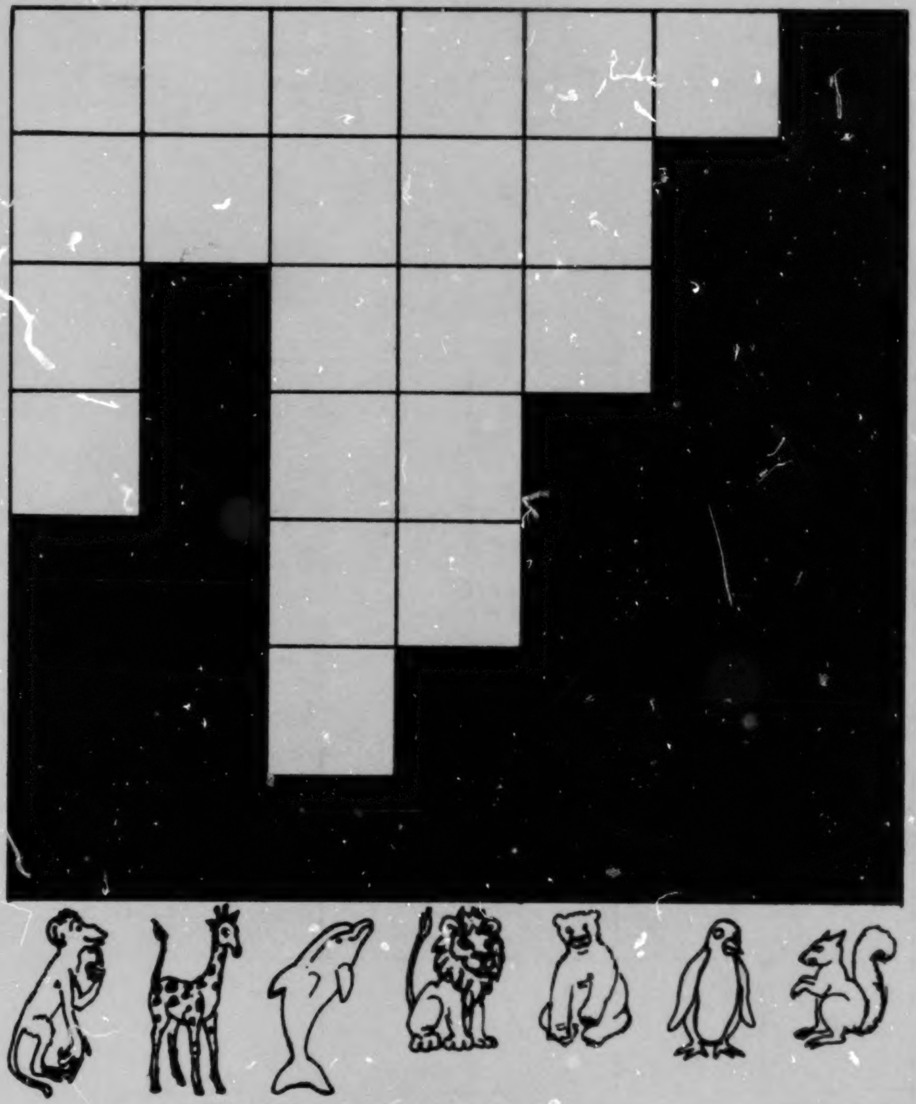
5						
4						
3						
2						
1						

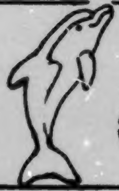
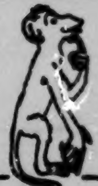
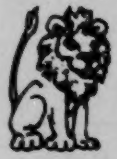
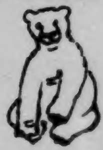
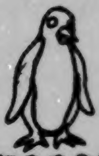
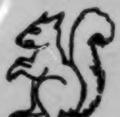
Say, "Today we are going to make a bar graph. We want to find out which color crayon most of the students have. We will begin at our tally chart. Raise your hand if you have a red crayon. ...brown crayon." Repeat this procedure until all colors are tallied. Record the number on the bar graph. Discuss the results with the students.

P.O. 1.12.02.01

NAME:____________________ CLASS:__________ DATE:__________

Count the number of squares which are shaded.
Ring how many of each animal you count on the bar graph.

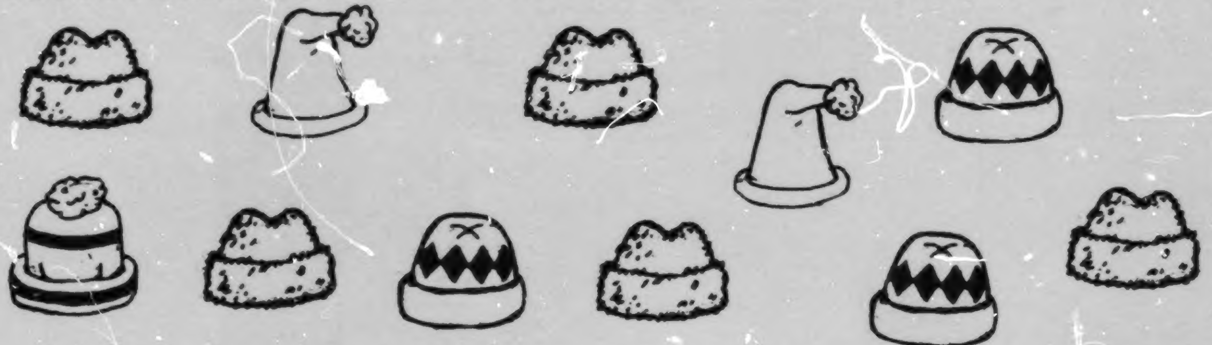


 [✓ 1] 4 5	 3 1 2	 5 1 2
 3 4 6	 6 8 3	 6 7 5

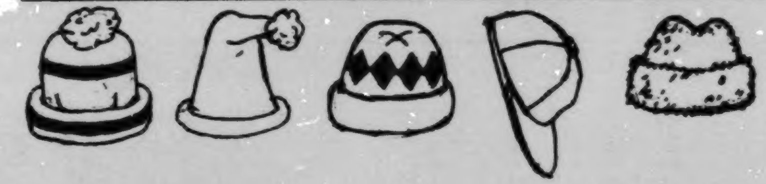
P.O. 1.12.02.02

NAME:______________________CLASS:__________DATE:________

Count the number of each hat. Color the boxes to show how many.



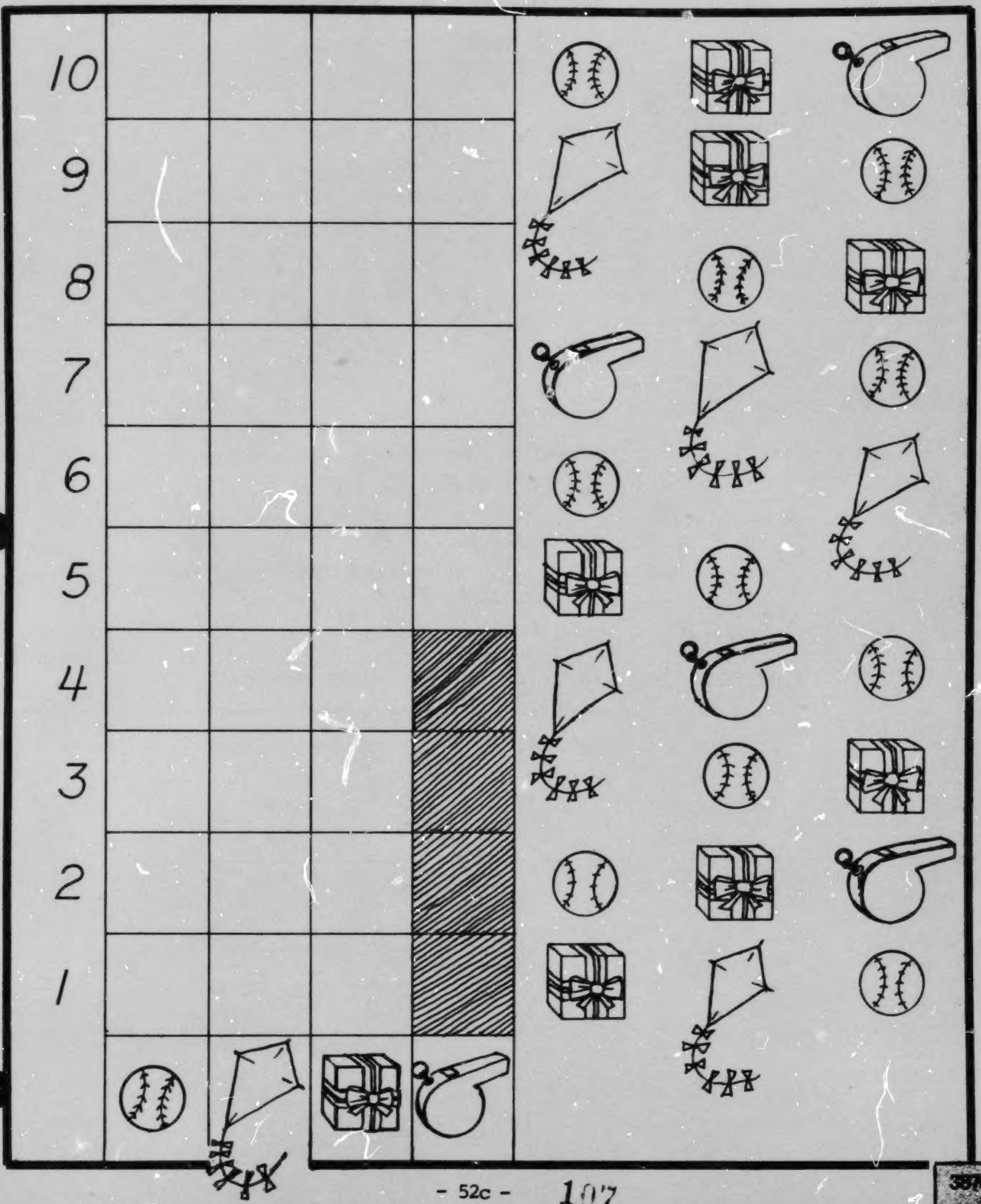
6					
5					
4					
3					
2					
1					



P.O. 1.12.02.03

NAME: ______________________ CLASS: __________ DATE: ________

Count the number of each object shown on the graph.
Color the boxes to show how many.


10
9
8
7
6
5
4
3
2
1

Unit 46

1.13.06 PROBLEM SOLVING: PATTERNS

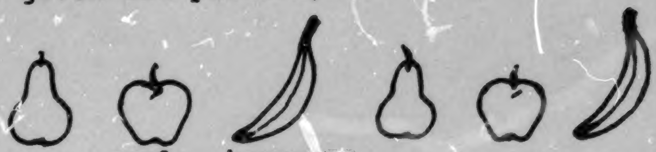
(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

*1.13.06.01A identify the rule for a non-numerical pattern, given the pattern;

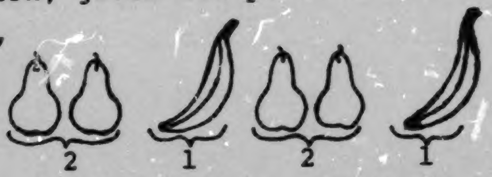
e.g.,



pear, apple, banana...

*1.13.06.02A identify the rule for a numerical pattern, given the pattern.

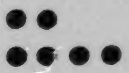
e.g.,



1.13.06.03B identify patterns for sums and differences using concrete materials and tables.

e.g.,

+	1	2	3
1	2	3	4
2	3	4	5
3	4	5	6



108

1.13.06

VOCABULARY

TERMS

pattern
clap
snap

4

GETTING STARTED

Say, "Today we are going to play a game. I will do something. When I am finished I will ask someone to do the same thing I did. Watch carefully." Put your hands on your head, and then on your shoulders. Ask a student to repeat your actions.

Repeat this procedure using different two-step alternating patterns.

Say, "I will clap my hands and snap my fingers. Close your eyes and listen." Clap your hands twice and snap your fingers once. Say, "Open your eyes. How many times did I clap my hands? ... snap my fingers? (Twice, once) Now, close your eyes and listen." Snap your fingers twice and clap your hands once. Say, "Open your eyes. What did I do first? (Snapped fingers) How many times did I snap my fingers? (Twice) What did I do next? (Clapped hands) How many times did I clap my hands?" (Once) Ask students to duplicate the pattern and then make up different combinations.

1.13.06

1.13.06.01 **identify the rule for a non-numerical pattern, given the pattern**

STRATEGY 1: Prepare and distribute several circles and squares to each student. Draw the following arrangement on the chalkboard.

e.g., ○ □ ○ □

Say, "Arrange your circles and squares to look just like mine. Who can tell us about their arrangement?"

Add a circle to the row. Ask the students to do the same. Say, "We now have a circle, square, circle, square, circle. If we add another shape, what should the next shape be? Why?"

Repeat this procedure with other alternating patterns.

STRATEGY 2: Ask the students to sit in a circle. Say, "Watch what I do." Proceed to place your hands on your shoulders, your head, your shoulders, your head. Say, "Let's all do it together. Stop with your hands on your head. If we didn't stop what would we have done next? Now watch this pattern." Clap your hands twice, touch your nose once, clap your hands twice, touch your nose once. Stop the action abruptly. Say, "What will I do next?" Continue the action. Ask the students to participate. Select different students to become new pattern leaders.

1.13.06.02 **identify the rule for a numerical pattern, given the pattern**

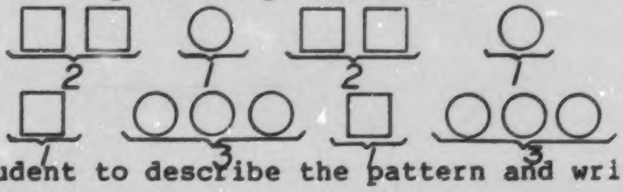
STRATEGY 1: Prepare and display two boxes, each containing a different set of objects, e.g., circles and

1.13.06

STRATEGY 1: cont'd

squares. Place magnetic tape on the back of each shape. Place two squares and one circle on the chalkboard. Repeat the pattern again.

e.g.,



Ask a student to describe the pattern and write the numerals to describe the numerical pattern. Return the shapes to the boxes and allow the student who described the pattern to make a new pattern.

STRATEGY 2: Prepare and distribute several interlocking cubes of two different colors to each student. Say, "I will connect my cubes to make a pattern. Copy my pattern with your cubes." When the students have copied the pattern, say, "Who can tell us about the pattern? (One red, one yellow, one red, one yellow.) Now I will connect my cubes differently to make a new pattern." Display the pattern to the students. Say, "Make a pattern with your cubes so that it is just like mine. Who can describe this pattern for us?" (One yellow, two green, one yellow, two green.)

Ask the students to make different patterns with their cubes and describe them.

1.13.06.03 **identify patterns for sums and differences using concrete materials and tables**

STRATEGY 1: Draw a 7 by 7 grid on the chalkboard. Prepare and distribute a 7 by 7 grid and five chips to each student. Ask the students to place a plus sign in

1.13.06

STRATEGY 1:
cont'd

the first box of the grid. Demonstrate on the chalkboard. Write the numerals 0 through 5 across the top of the grid. Number the vertical column 0 through 5 starting in the box below the plus sign. e.g.,

+	0	1	2	3	4	5
0						
1						
2						
3						
4						
5						

Point to the vertical column. Say, "This column tells how many chips we are starting with." Point to the zero. Say, "Who can tell us how many chips we will start with?" Point to the horizontal column. Say, "This column tells us how many chips we will add." Point to the zero on the horizontal line. Say, "How many chips shall we add on? How many chips did we start with? How many chips are we adding on? Put your finger on the 0 at the top. Put a finger on the 0 on the side. Under the zero you will see an empty box. That is where we will write the answer to 0 + 0." Put the zero in the box on the chart. Ask the students to do the same on their grids. Move your finger one numeral to the right. Say, "We start with zero. How many are we adding on?" Ask the students to look at the numeral on which your finger is resting. Say, "Place one chip on your table." Demonstrate by placing one magenetic disc on the chalkboard. Say, "We started with zero, we added one and now we have one." Write the numeral 1 in the box bordered by your finger. Continue to move the marker one place to the right. Discuss the number pattern for the row with the students. Move down to the vertical numeral and the horizontal 0. Use the chips to

STRATEGY 1: cont'd

dramatize the action as each move is made. When the grid is completed to sums through five, guide the students to notice patterns (e.g., take a piece of colored chalk and trace over all the four's in the grid).

e.g.,

+	0	1	2	3	4	5
0	0	1	2	3	4	5
1	1	2	3	4	5	
2	2	3	4	5		
3	3	4	5			
4	4	5				
5	5					

Ask the students what they notice about it. Ask if anyone sees a different pattern they would like to share with the other students.

STRATEGY 2: Draw a 7 by 7 grid on the chalkboard. Prepare and distribute a 7 by 7 grid and five chips to each student. Develop the grid for subtraction, differences 0 through 5, in the same manner as the addition table used in Strategy 1. Discuss the different patterns with the students. Use colored chalk to trace over the numerals for each pattern discussed: e.g., What number do we get as a difference when the horizontal and vertical numbers are the same?

e.g.,

-	0	1	2	3	4	5
5	5	4	3	2	1	0
4	4	3	2	1	0	
3	3	2	1	0		
2	2	1	0			
1	1	0				
0	0					

Say, "Place your finger so that it touches the four in the column under the minus sign.

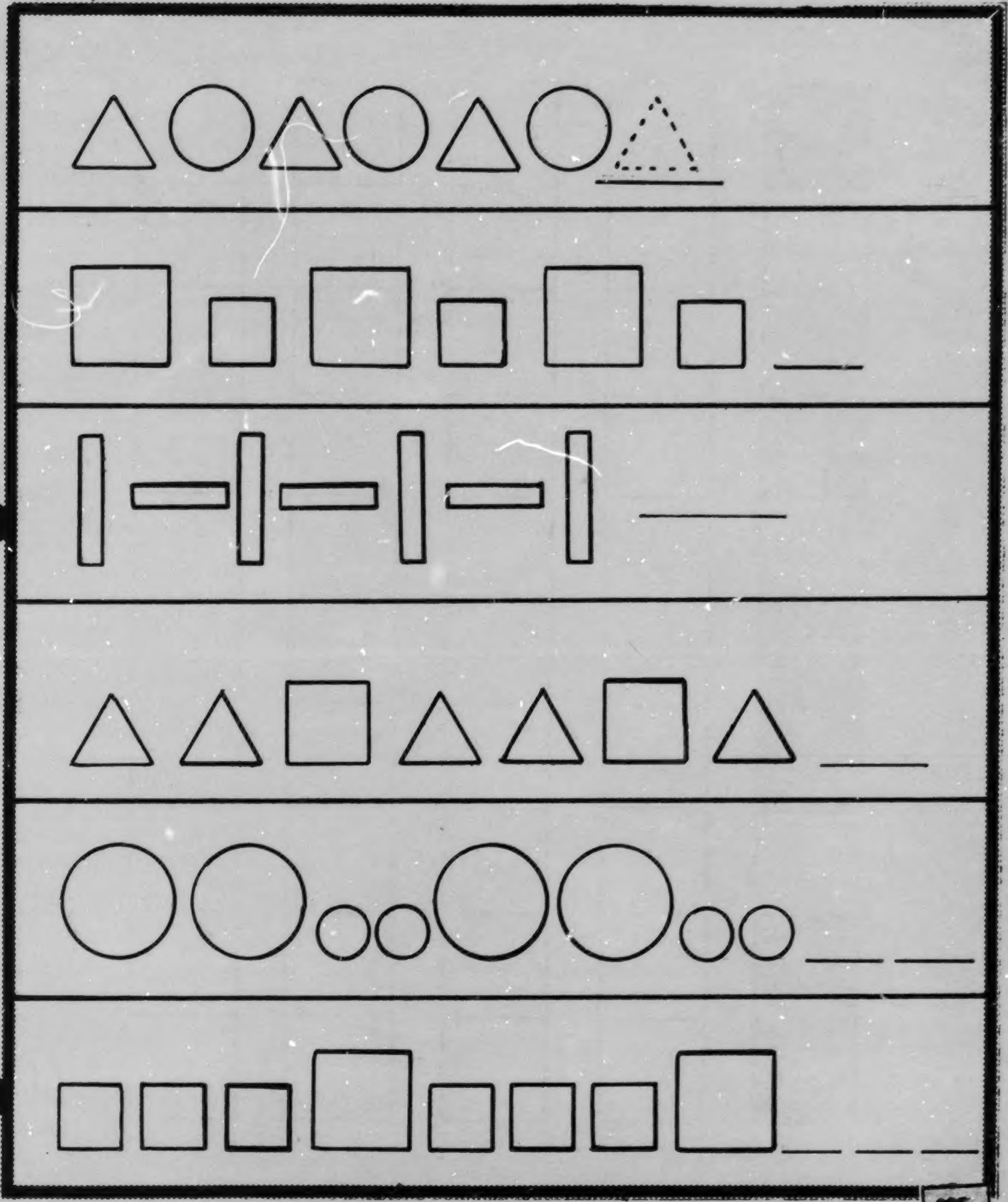
STRATEGY 2: cont'd

Place a finger from your other hand so that it touches the three, the two, the one, or the zero in the row next to the minus sign. What do you notice about the difference?"

P.O. 1.13.06.01

NAME:____________________________________ CLASS:__________ DATE:_________

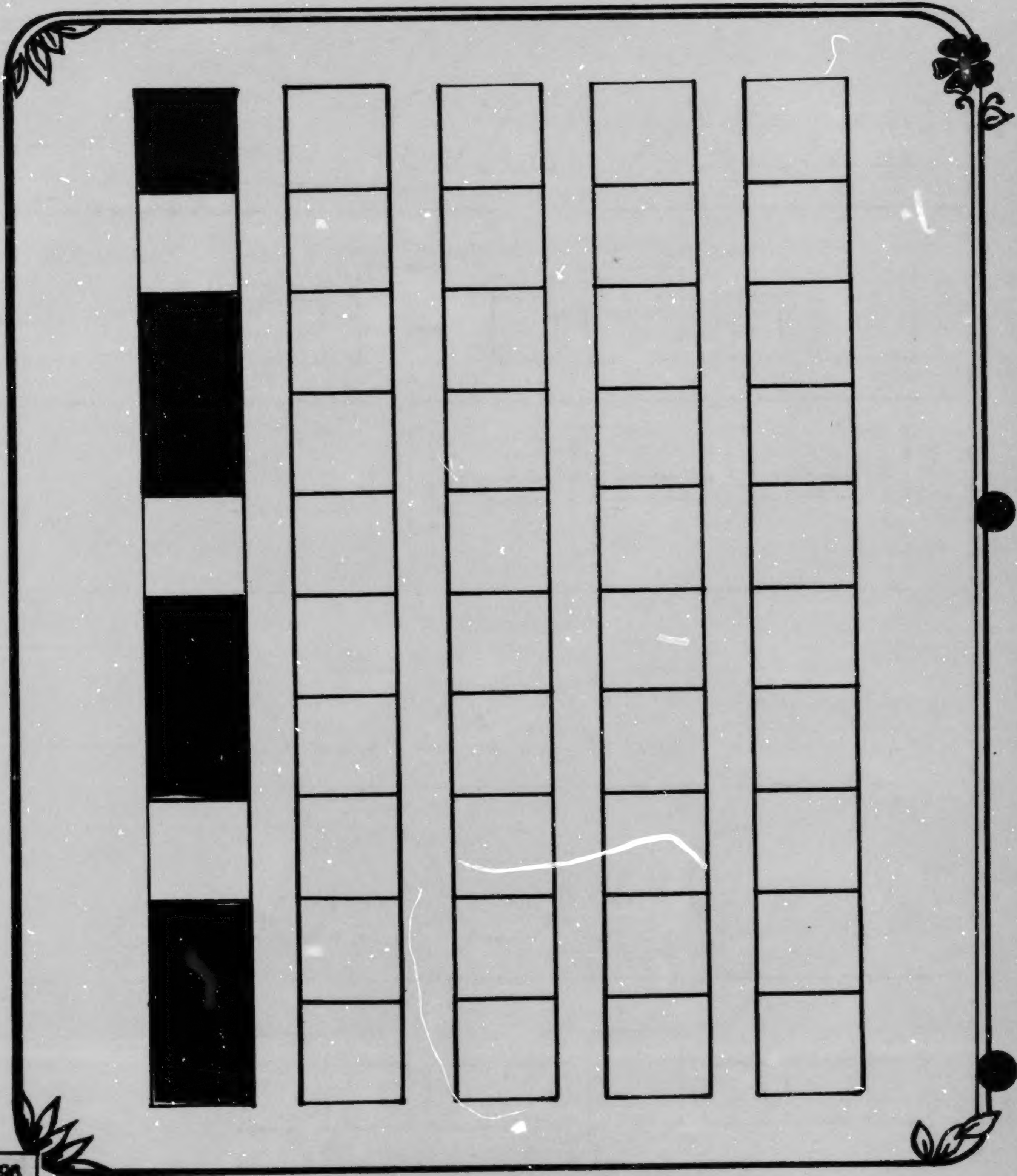
Look at each pattern. Draw the shape(s) that come next.



P.O. 1.13.06.01

NAME: ______________________ CLASS: __________ DATE: __________

Directions: Use two different colored crayons.
Color the squares to make other patterns of your own.



P.O. 1.13.06.02

NAME:______________________ CLASS:__________ DATE:________

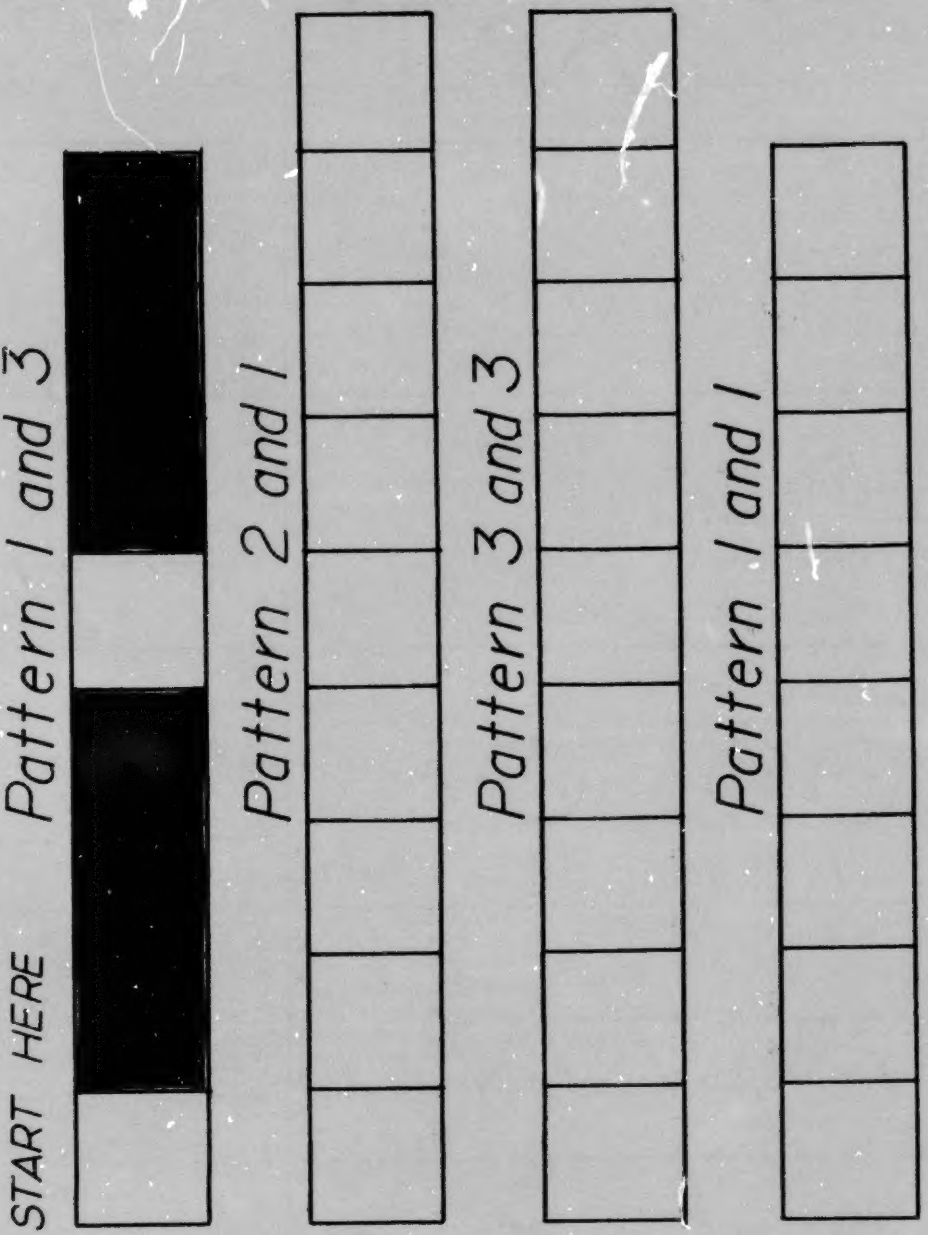
Directions: Look at the patterns. Write the numerals to describe the pattern.

♡ ♡ □ □ ♡ ♡ □ □	2 ♡'s 2 □'s
△ △ △ ○ △ △ △ ○ ...	___ △'s ___ ○'s
▯ ▭ ▭ ▯ ▭ ▭ ▯ ...	___ ▯'s ___ ▭'s
☹ ☹ ☺ ☺ ☺ ☹ ☹ ...	___ ☹'s ___ ☺'s
△ ▽ ▽ ▽ △ ▽ ▽ ▽ ...	___ △'s ___ ▽'s
○ ○ ▯ ▯ ○ ○ ▯ ▯ ...	___ ○'s ___ ▯'s

P.O. 1.13.06.02

NAME: ______________________ CLASS: ________ DATE: ________

Directions: Use two different color crayons. Color the squares to make the pattern.


START HERE
Pattern 1 and 3
Pattern 2 and 1
Pattern 3 and 3
Pattern 1 and 1

P.O. 1.13.06.03

NAME: ______________________ CLASS: __________ DATE: ________

Look at the grid. Fill in the missing numbers.
Tell about the patterns you found.

+	0	1	2	3	4	5
0	0	1		3	4	5
1	1		3	4	5	
2		3	4	5		
3	3	4	5			
4	4	5				
5	5					

P.O.1.13.06.03

NAME:______________________________CLASS:________DATE:______

Look at the grid. Fill in the missing numbers to complete the pattern. Tell about the pattern you found.

−	0	1	2	3	4	5
5	5		3	2	1	0
4	4		2	1	0	
3	3		1	0		
2	2		0			
1	1					
0	0					

Unit 47

1.01.13 THE NUMERAL TEN (10)

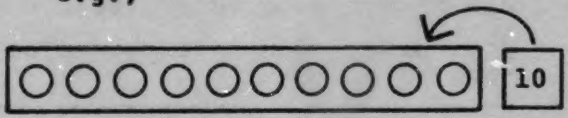
(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

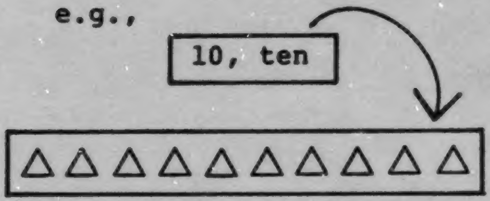
1.01.13.01A identify and associate the numeral 10 with a group (set, lot, bunch, heap, pile) having ten objects;

e.g.,



1.01.13.02B associate the number word ten with the numeral 10 and with a group (set, lot, bunch, heap, pile) having ten objects;

e.g.,



1.01.13.03A recite, count and write the numerals 0 through 10 forward and backward in correct counting order.

e.g.,

0,1,2,3,4,5,6,7,8,9,10

10,9,8,7,6,5,4,3,2,1,0

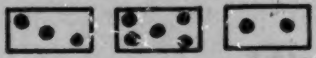
1.01.13

1.01.13

VOCABULARY

TERMS	SYMBOLS
ten	10

GETTING STARTED

Prepare and display dot cards for the numerals one through nine, in random order e.g.,  ... Distribute numeral cards to students. Ask students to match their numeral cards to the corresponding dot cards. Continue this procedure.

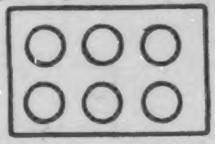
Prepare counters and a set of cards numbered 1 through 9. Distribute nine counters to each student. Display a numeral card, e.g., $\boxed{2}$. Say, "What numeral does this card show? (2) Place the same number of counters on your desk." Repeat this procedure for each numeral card.

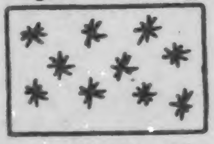
1.01.13

1.01.13.01 identify and associate the numeral 10 with a group (set, lot, bunch, heap, pile) having ten objects

STRATEGY 1: Prepare ten flannelboard cutouts and a set of cards with groups of one through ten objects.

e.g.,





Display nine cutouts on a flannelboard. Say, "How many objects do you see? Let's count: 1, 2, 3... 9." Place one more object on the flannelboard. Say, "How many objects are there now?" (10) Write the numeral 10 on the chalkboard.

Display cards and ask students to point to each card that contains ten objects, and write the numeral 10 above them.

STRATEGY 2: Prepare counters and pictures with one through ten objects. Distribute ten counters to each student. Tape ten counters to the chalkboard. Say, "Make the same group on your desk using your counters. Let's count: 1, 2, 3... 10. How many counters are on the chalkboard? (10) How many counters are on your desk?" (10) Write the numeral 10 on the chalkboard. Say, "This numeral (10) shows us the number of objects that are in our group."

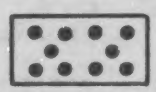
Display pictures on the chalkboard ledge. Have students count and identify the pictures with a group of ten objects. Tape those pictures under the numeral 10 on the chalkboard.

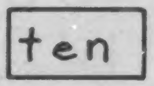
1.01.13

1.01.13.02 associate the number word ten with the numeral 10 and with a group having ten objects

STRATEGY 1: Prepare a class set of cards with ten objects on one side and the number word ten on the reverse side.

e.g.,


front



back

Distribute one card and scissors to each student. Say, "Today we are going to make a puzzle. Cut your card into three pieces. Mix up the pieces. Now try to put your puzzle together." Tape pieces together as students complete individual puzzles. Say, "How many dots are there on your card?" (10) Write the numeral 10 on the chalkboard. Say, "Turn your puzzle over. Can you tell us the word printed on your card?" Write the word ten on the chalkboard. Point to the word and say, "This is the number word for ten. It tells us how many objects are on our puzzle cards."

STRATEGY 2: Prepare and display a flannelboard and flannelboard cutouts. Write a numeral and the matching number word (one to ten) on the chalkboard. Ask students to come up to the flannelboard and place the indicated number objects on the flannelboard. Repeat this procedure.

For a variation reverse the procedure. Place a number of objects on the flannelboard and have students find the correct numeral card and/or word card.

1.01.13

1.01.13.03 **recite, count and write the numerals 0 through 10 forward and backward in counting order**

STRATEGY 1: Prepare and display a set of cards containing the numeral, a pictorial representation and the number word for numerals 0 through 10.

e.g.,

1 • one

Prepare and distribute a numeral card, pictorial card or word card to each student. Say, "Zero." Ask the students holding the cards that match zero to stand and hold their cards in front of them.

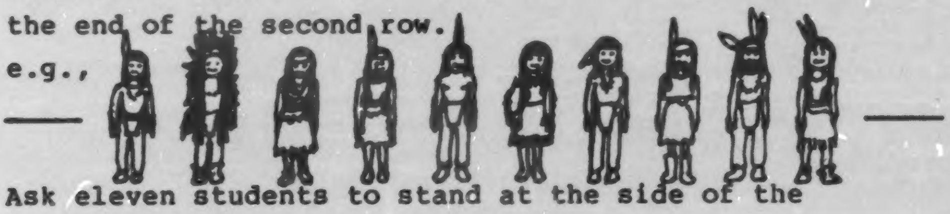
e.g.,

0		zero

Continue this procedure calling the numbers in counting order. Ask the students to exchange cards and reverse the procedure counting backwards from 10 to 0.

STRATEGY 2: Prepare a set of cards numbered 0 through 10 and a rexographed sheet with two rows of ten Indians with a space in front of the first row and a space at the end of the second row.

e.g.,



Ask eleven students to stand at the side of the classroom. Distribute a numeral card to each student standing. Say, "Let's sing 'Ten Little Indians'. When you hear the number that you are holding, come to the front of the classroom and

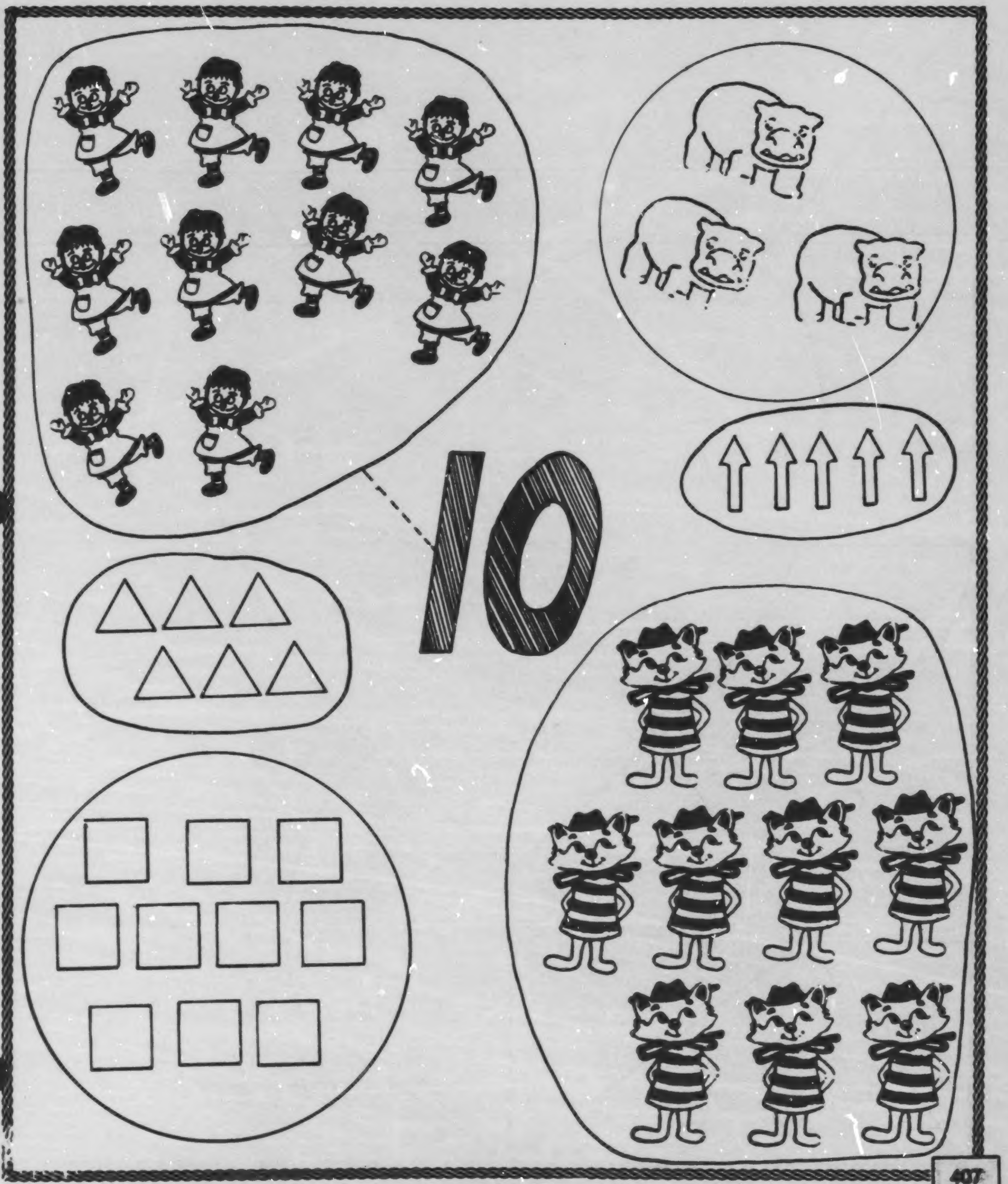
STRATEGY 2: cont'd

place yourself in line." Sing with the class, "One little, two little, three little Indians... " When the song is completed, one student should still be standing at the side of the room. Say, "Who is at the side of the room? Why? What numeral card is Joe holding? Where should Joe be on our line? Zero is our starting point. Whoever holds the zero card must be the first on line when we count forwards. We will sing the song again, but this time we will sing it counting backwards from ten. Which number will be on line last? When we count backwards, zero is the last number we name." Ask eleven other students to exchange places with those standing. Repeat the procedure but sing, "Ten little, nine little, eight little... " Distribute the rexographed sheet. Say, "We will sing our song forwards and backwards but this time we will write the numerals for the number we sing. We will start with zero. Write zero on the first space. Each time we sing about an Indian write the numeral on the line under each one."

P.O. 1.01.13.01

NAME: ______________________ CLASS: __________ DATE: ________

Draw a line from the numeral 10 to the groups with ten objects.

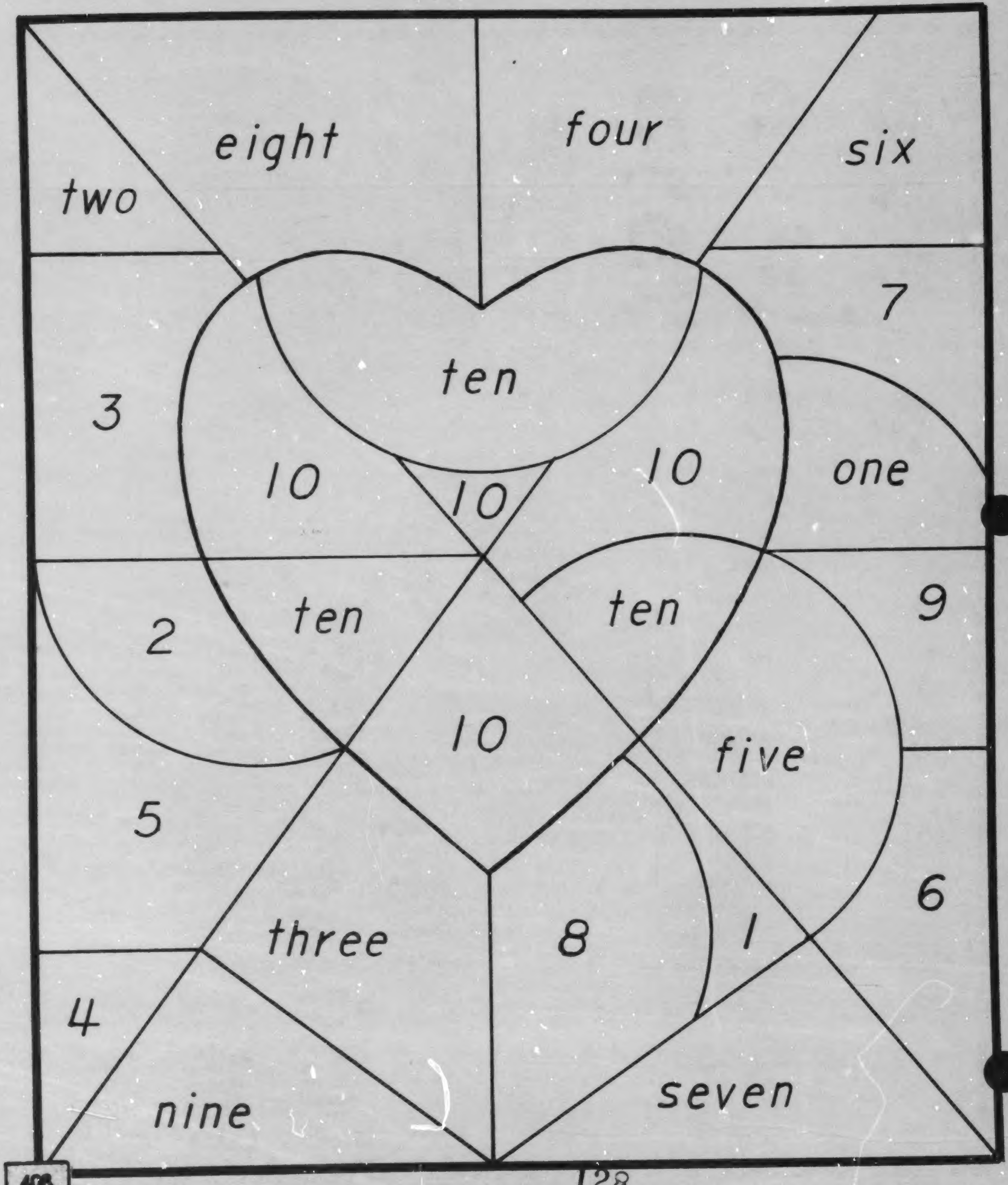


407

P.O. 1.01.13.02

NAME: ______________________ CLASS: __________ DATE: ________

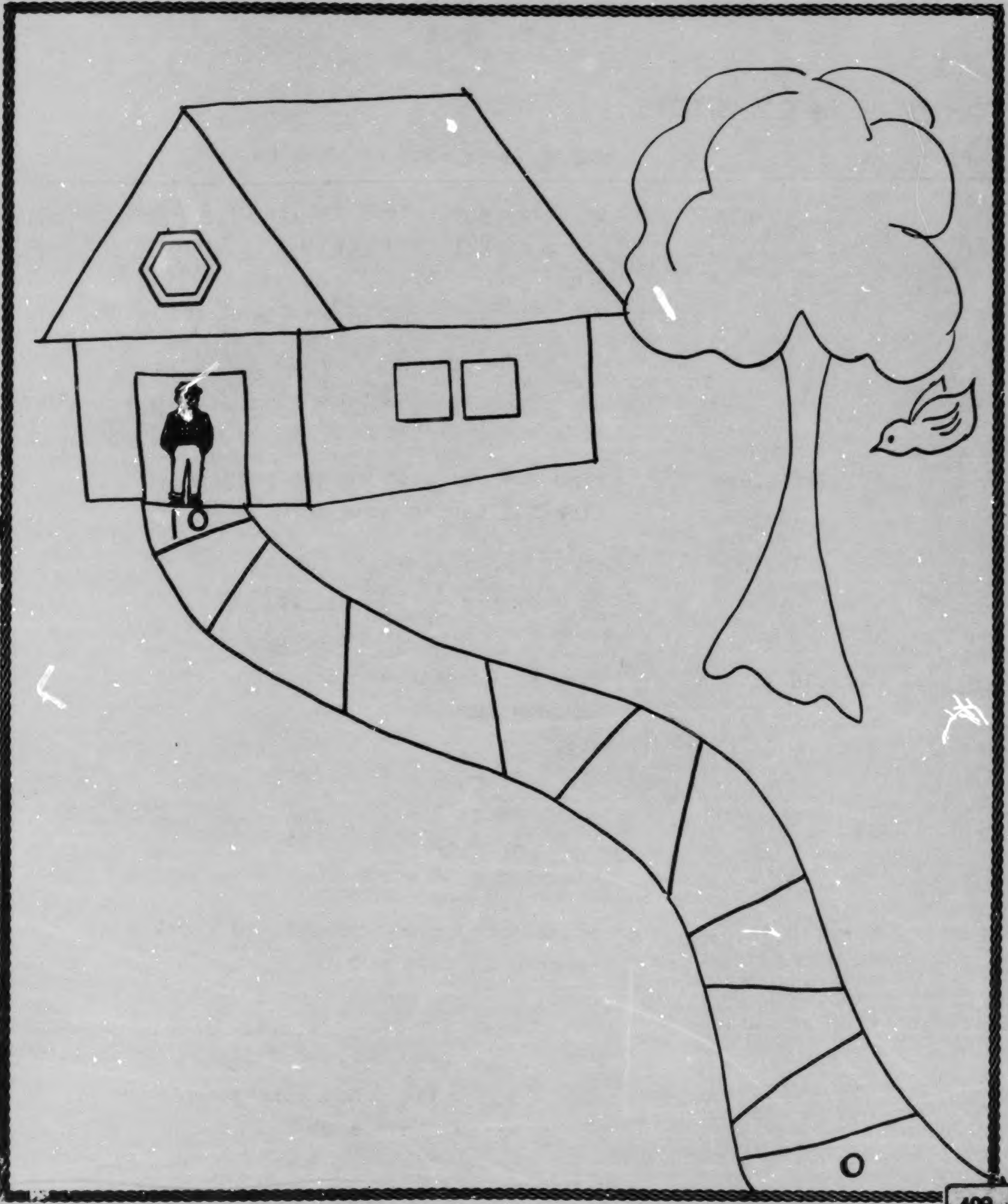
Use a red crayon to color all the names for 10.


eight
four
six
two
7
ten
3
10
10
10
one
2
ten
ten
9
10
five
5
6
three
8
1
4
nine
seven

P.O. 1.01.13.03

NAME:______________________ CLASS:__________ DATE:________

Help Mr. Buzz walk down the lane. Write the numerals on the path, starting with 10 going to 0.



Unit 48

1.10.15 DIMES

(3 lessons)

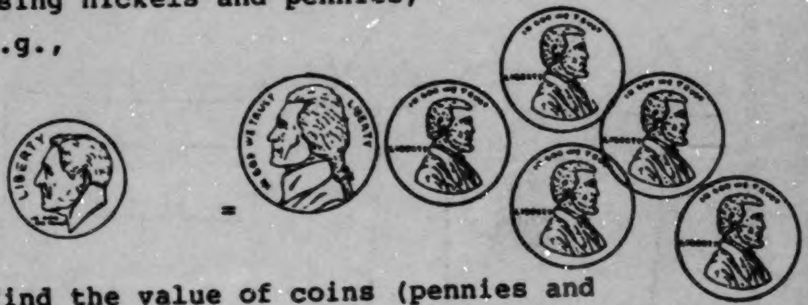
PERFORMANCE OBJECTIVES

The student will be able to...

1.10.15.01A identify equivalent values of a dime using nickels and pennies;

e.g.,

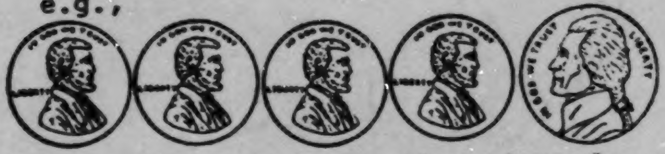
In value



1.10.15.02A find the value of coins (pennies and nickels) having sums through 10¢;

e.g.,

9¢ =



*1.10.15.03A find the difference using minuends through 10¢;

e.g.,

8¢ - 2¢ = 6¢
9¢ - 1¢ = 8¢
4¢ - 4¢ = 0¢
10¢ - 5¢ = 5¢

8¢	9¢	4	10¢
-2¢	-1¢	-4¢	-5¢
6¢	8¢	0¢	5¢

*1.10.15.04A solve story problems related to skills learned in this module.

e.g.,

Martha found a nickel in her backyard. Then her mother gave her 5 pennies. How much money does Martha have now?

1.10.15

VOCABULARY

TERMS	SYMBOLS
dime	10¢
change	

GETTING STARTED

Prepare and display coin facsimilies to show a penny and a nickel. If possible, provide each student with a penny and nickel facsimile. On the chalkboard label two columns, one SAME and one DIFFERENT. Ask the students to relate characteristics of the coins and tell whether they are the same or different for both coins. (e.g., the penny is round and the nickel is round - they both have the same shape.)

e.g.,

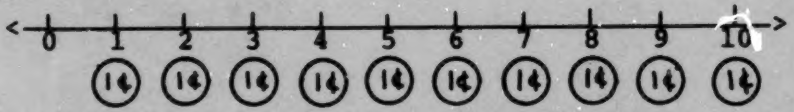
SAME	DIFFERENT
metal	color
shape	size
dates	value
words	

Prepare and distribute ten penny facsimiles and a set of cards numbered 1 through 10 to pairs of students. Ask one student to choose a numeral card. Ask the other student to count out the number of pennies the card represents. When all the amounts have been counted and shown, the students reverse roles.

1.10.15

1.10.15.01 **identify equivalent values of a dime using nickels and pennies**

STRATEGY 1: Prepare ten pennies, two nickels and a dime. Draw a large number line labeled 0 through 10 on the chalkboard. Display a penny. Say, "Who can tell us the name of this coin? How much is it worth?" Tape the penny underneath the numeral 1 on the number line. Show another penny. Say, "How many pennies have I shown you altogether? We had one penny and now we have another penny. Altogether we have two pennies." Ask a student to tape the penny underneath the numeral 2 on the number line. Continue until 10 pennies are taped on the chalkboard. Ask students to randomly count different amounts of pennies and see what numeral it corresponds to. Say, "Who can come up and count 6 pennies?



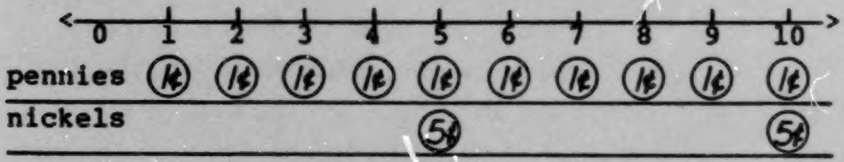
How much are five pennies worth?" Begin to develop a chart on the side of the chalkboard with different value equivalencies.

e.g.,
1 penny = 1 cent
5 pennies = 5 cents
10 pennies = 10 cents

Display a nickel. Say, "Who can tell us the name of this coin? How much does it equal? Who can show us the 5 on the number line? Where do you think we should tape the nickel?" Guide the students to see that the value of the nickel is the same as five pennies. Point to the five on the number line. Say, "How many pennies did we need to get to five? How many nickels did we need to get to five?" Continue the chart equivalence, 1 nickel = 5 cents, 5 pennies = 1 nickel. Starting with the nickel count out 5 more steps on the number line.

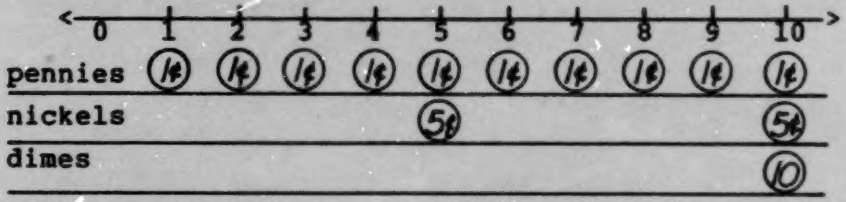
STRATEGY 1: cont'd

Say, "Where are we now? We started at 5 and counted five more spaces." Tape another nickel on the number line at 10. Ask several students to come up one at a time and start from the five and count five more spaces. Your number line should now look like this.



Continue to develop the coin equivalency chart to include:
2 nickels = 10 cents
2 nickels = 10 pennies

Display the dime. Discuss its characteristics. Say, "Who knows the name of this coin? How many cents is a dime equal to? Where should we tape the dime?" Ask a student to tape the dime underneath the 10 on the number line. Discuss all the coin equivalencies with the students.



Continue the coin equivalency chart to include the dime. Ask the students to copy the chart into their notebooks.

STRATEGY 2: Prepare and distribute a group of five pennies, two nickels, one dime and a paper plate to each student. Say, "Place one penny, two pennies... five pennies on your paper plate. Which coin is worth five pennies? Show six cents, seven cents... ten cents. Show a coin that is worth ten cents. Find two coins that are worth ten cents. Show another way to make ten cents."

1.10.15

1.10.15.02 **find the value of coins (pennies and nickels) having sums through 10¢**

STRATEGY 1: Prepare plastic bags containing ten pennies and two nickels, placemats and pictures of objects with price tags. Distribute a plastic bag of coins and a placemat to each student. Display the pictures of objects with price tags on the chalkboard ledge. Say, "We will use our coins to go shopping." Point to one of the pictures. Say, "Who can tell us what this is? How much does it cost? Take out the coins you need from your plastic bag and place them on your placemat." Discuss the different arrangements the students have made. e.g., (seven pennies or one nickel and two pennies) Ask the students to replace the coins and display another object for sale.

STRATEGY 2: Prepare a deck of coin stamped cards. Ask two through five players to select a card, in turn, and identify the value of the coin pictured on that card. The player having the card with the greatest value takes all the cards. In case similar values are drawn, e.g., 2 nickels, dime, those players turn over another card as in the game "War".

1.10.15.03 **find the difference using minuends through 10¢**

STRATEGY 1: Prepare and distribute a package of ten pennies and a placemat to each student. Ask the students to count out seven pennies and place them on their placemat. Say, "How many pennies are on your placemat? How much are seven pennies worth?" Write 'We have 7¢' on the chalkboard. Display an object with a price tag, e.g., a pencil which costs 5¢. Say, "How much does this pencil cost? How much do

STRATEGY 1: cont'd

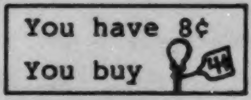
we need to buy the pencil?" On the chalkboard write "We spend 5¢". Direct the students to count out five pennies and put them back into the package. Say, "How many pennies are left on our placemats? How much is left? The money that is left is called the change." Continue the development of the number story. Write "Change 2¢" on the chalkboard. Ask the students to record the number story in their notebooks.

We have	7¢
We spent	-5¢
Change	2¢

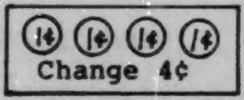
Continue with other amounts and objects.

STRATEGY 2: Distribute a package of ten pennies and five cards to pairs of students. The front of the card shows the amount of money the student has and an item to be purchased. The back of the card shows the amount of change.

e.g.,



front



back

One student takes a card and shows the front of it to his/her partner. The partner takes out the amount of money shown, removes the amount needed for the purchase and tells the amount he/she has left in change. The student holding the card checks the back to see if his/her partner is correct. The students then reverse roles.

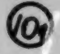
1.10.15.04 **solve story problems related to skills learned in this module**

STRATEGY 1: Prepare and display penny, nickel and dime facsimilies. Say, "Karen was walking down the

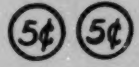
STRATEGY 1: cont'd

street and found a bright, shiny new dime. She was so excited. Her brother said, 'Now you have as much money as I do.' How much money does Karen's brother have? What coins do you think he might have?" Display Karen's dime. Ask students to show other coin equivalencies equal to the value of a dime. Develop a chart with the students to help solve these story problems.

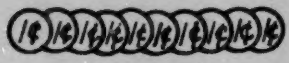
e.g.,



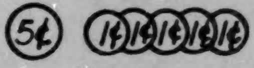
one dime



two nickels



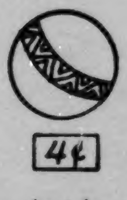
ten pennies

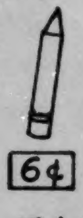


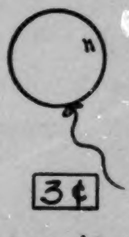
one nickel
and five pennies

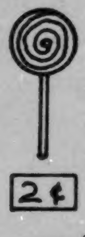
Continue with similar problems.

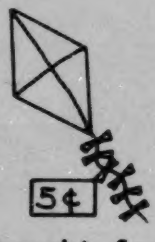
STRATEGY 2: Prepare and distribute a placemat and penny, nickel and dime facsimilies to each student. Prepare and display pictures of items with price tags which may be purchased. Say, "Put ten cents on your placemat. This is how much money we have." Discuss the different coins which may be displayed to show this amount. Say, "We want to buy two of these items. Which two can we buy?" List the student responses on the chalkboard. Add the purchase prices together to see if they are equal to ten cents. e.g., a ball and a pencil, a pencil and a balloon.

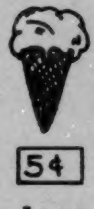












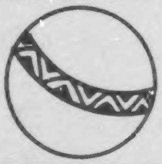
Variation: Which two items can be bought for less than ten cents?
How many items can be bought together for ten cents? What are they?

P.O. 1.10.15.01

NAME: ______________________ CLASS: ________ DATE: ________

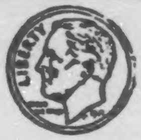
Count each set of coins.
Circle the correct answer.

Can you buy this toy?



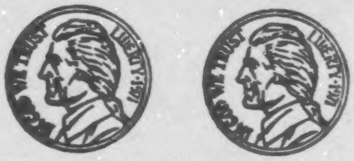
10¢

You have



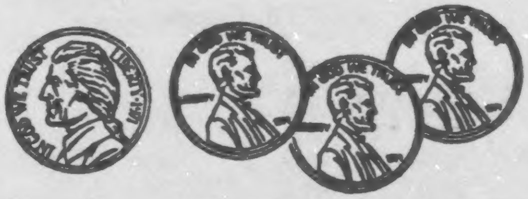
[✓ Yes] No

You have



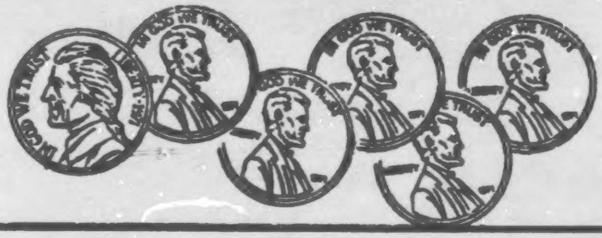
Yes No

You have



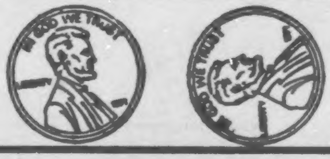
Yes No

You have



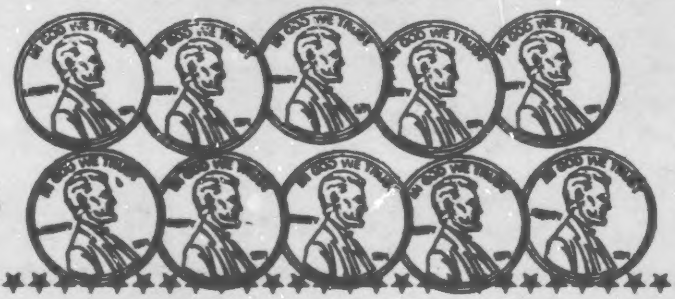
Yes No

You have



Yes No

You have

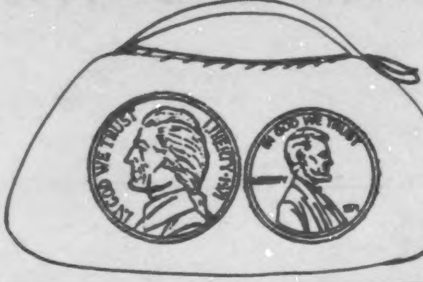
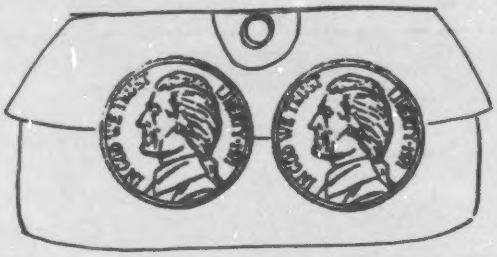
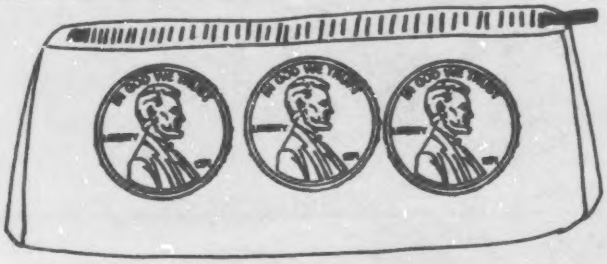
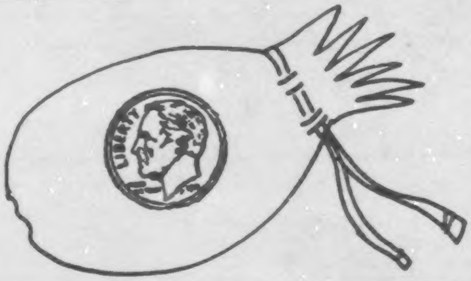
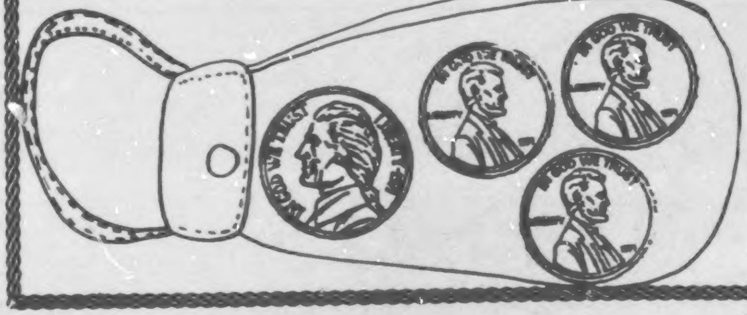


Yes No

P.O. 1.10.15.02

NAME:____________________ CLASS:__________ DATE:________

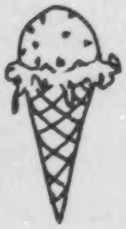
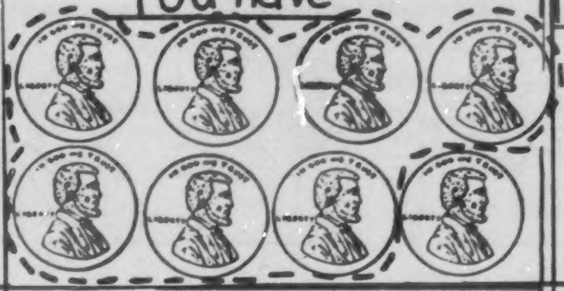
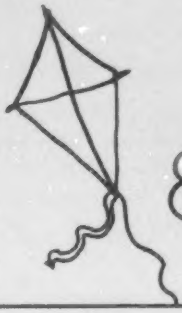
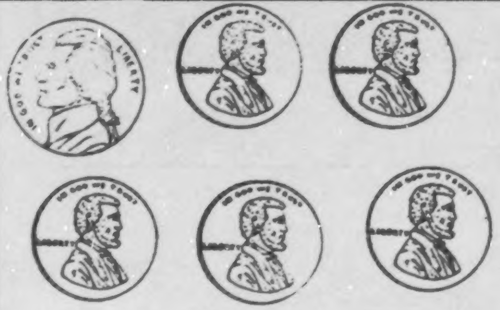
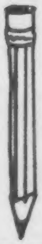
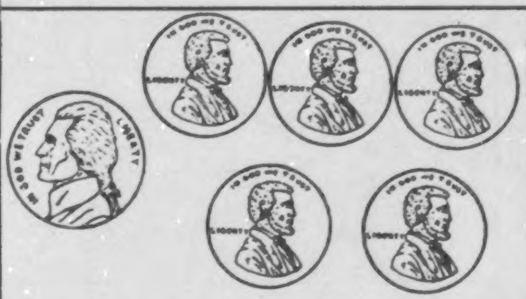
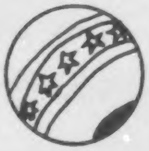
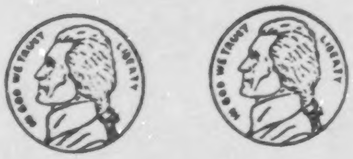
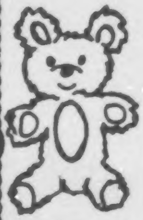
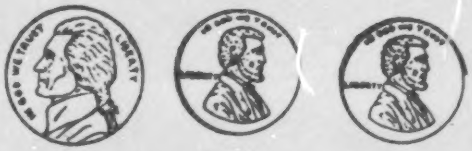
How much money is shown in each box?

	6¢
	
	
	
	

P.O. 1.10.15.03

NAME: ______________________ CLASS: ________ DATE: ________

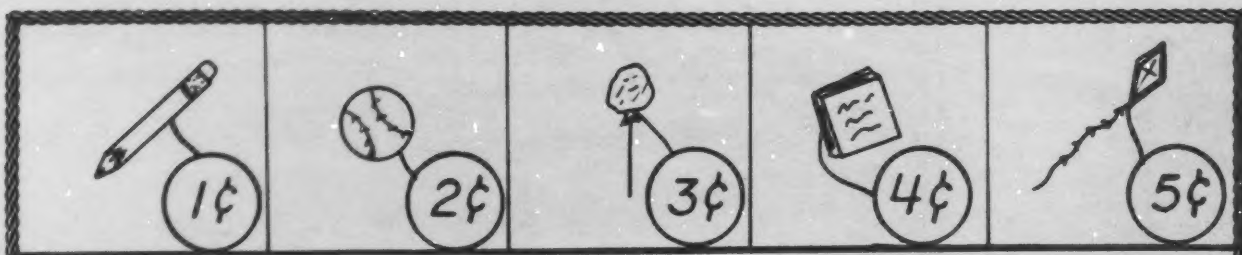
Draw a ring around the amount you spend.
How much is left?

	You have	How much is left?
 7¢		1¢
 8¢		
 4¢		
 5¢		
 6¢		

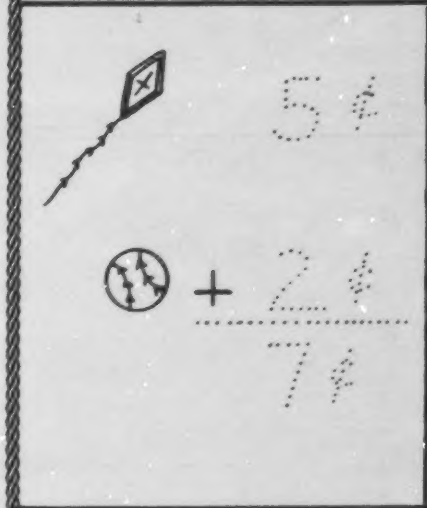
P.O. 1.10.15.04

NAME: ______________________ CLASS: ________ DATE: ________

How much money will you spend?

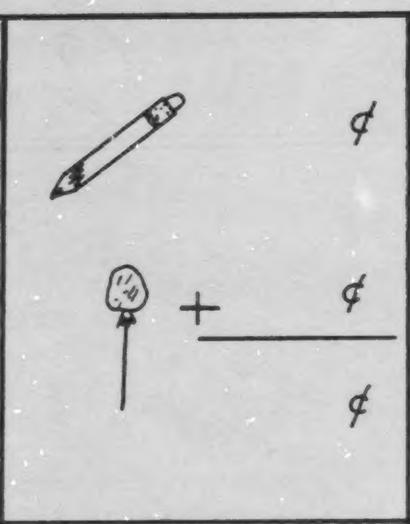


How much money?


5¢

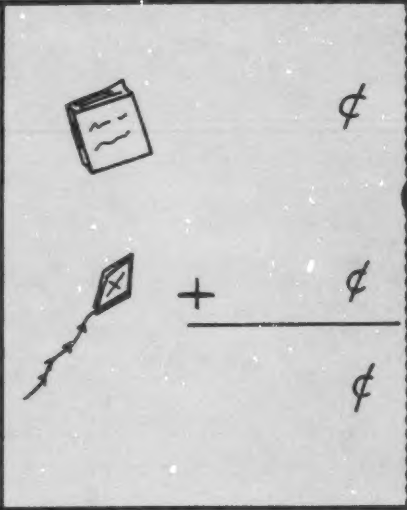
+ 2¢

7¢


¢

+ ¢

¢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+ ¢

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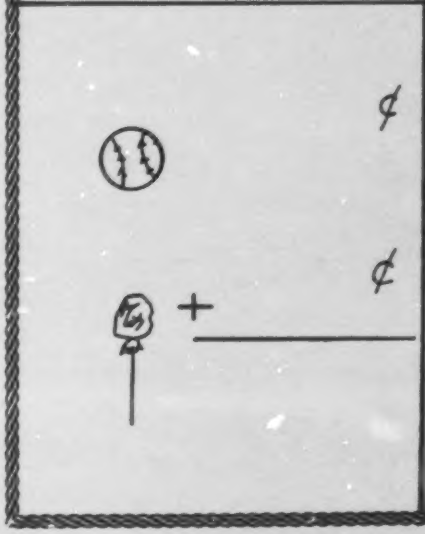
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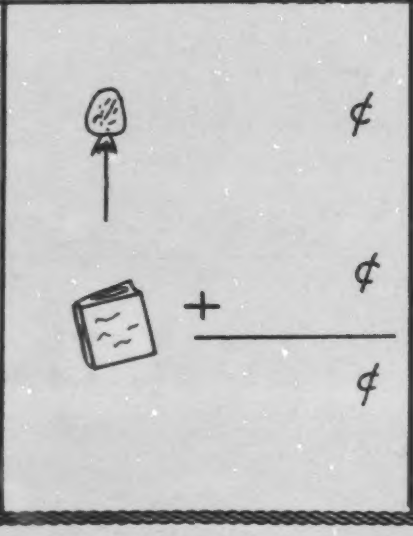
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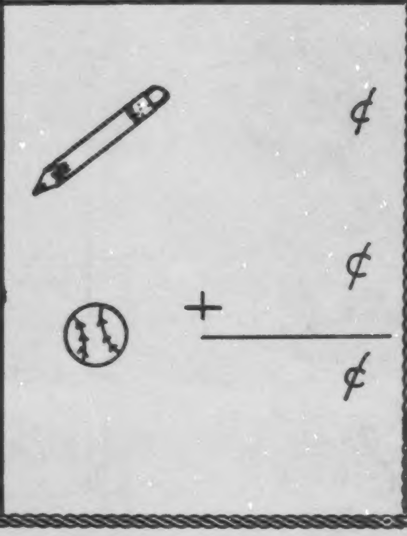
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Unit 49

1.02.04 COMMUTATIVE PROPERTY WITH SUMS THROUGH TEN

(3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

1.02.04.01A write addition facts for the numbers six through ten, in vertical and horizontal formats;

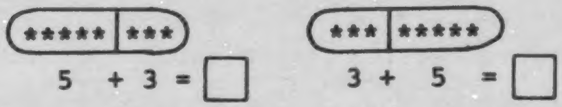
e.g.,

$$\overbrace{\begin{array}{cccccccc} 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \underline{+7} & \underline{+6} & \underline{+5} & \underline{+4} & \underline{+3} & \underline{+2} & \underline{+1} & \underline{+0} \\ 7 & 7 & 7 & 7 & 7 & 7 & 7 & 7 \end{array}}^{7}$$

$$7\left\{\begin{array}{l} 0 + 7 = 7 \\ 1 + 6 = 7 \\ 2 + 5 = 7 \\ 3 + 4 = 7 \\ 4 + 3 = 7 \\ 5 + 2 = 7 \\ 6 + 1 = 7 \\ 7 + 0 = 7 \end{array}\right.$$

1.02.04.02A identify the commutative property in addition with sums through ten.

e.g.,



$5 + 3 = \square$ $3 + 5 = \square$

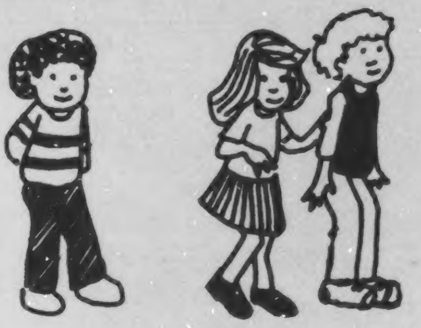
1.02.04

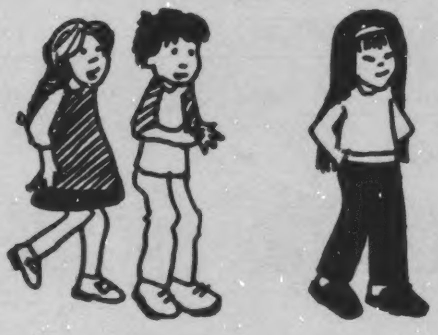
VOCABULARY

TERMS	SYMBOLS
plus, and	+
equals	=
zero, none, nothing	0
sum	

GETTING STARTED

Ask three students to stand at the front of the room. Direct two students to stand next to one another and the third student to stand apart from them. Stand behind the group of two. Say, "How many students are in this group?" Move behind the single student. Say, "How many students are in this group? How many students are standing in all?" Reverse the groups' positions. Repeat the procedures.



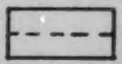


Divide the class into four teams. Ask one student to be the recorder. Prepare flashcards for addition facts two through five, e.g., $\boxed{2 + 3}$, $\boxed{4 + 1}$, $\boxed{3 + 1}$, $\boxed{2 + 2}$. Say, "We are going to play 'ADDO'. The team who gets the most points wins." Flash a card to the first person on team one. If he/she answers correctly, a point is scored for his/her team. Continue this procedure until each student has had a turn.

1.02.04

1.02.04.01 **write addition facts for the numbers six through ten in vertical and horizontal formats**

STRATEGY 1: Prepare and distribute six counting chips, two square pieces of paper and a plus symbol to each student. Ask the students to place the two squares in a row with the plus symbol between them on their desks. Say, "Place all six chips on the square which is on the left hand side of your desk." Demonstrate with magnetic discs. Point to the square on the left and say, "How many chips are on this square?" Point to the square on the right and say, "How many chips are on this square? How many chips are there in all? What is the addition fact for this arrangement?" Ask a student to come to the chalkboard and write the numbers, e.g., 6 0. Ask another student to write the plus sign (+) between the numbers, the equal sign and the sum. e.g., 6 + 0 = 6. Say, "We can write this another way." Repeat the procedure for vertical format. Continue this procedure for all addition facts of 6, 7, 8, 9 and 10.

STRATEGY 2: Prepare and distribute ten interlocking cubes and a sheet of paper folded down the center. e.g., Say, "Put your cubes into two groups. Place four cubes on one side of your paper. Place two cubes on the other side. Who can tell us the number sentence?" Write 4 + 2 = 6 on the chalkboard. Say, "Turn your paper around. (Demonstrate.) The cubes are horizontal. e.g.,  What is the number sentence?" Write $\begin{array}{r}4\\+2\\\hline 6\end{array}$ on the chalkboard. Say, "We can write the number sentence two ways, vertically or horizontally."

Repeat this procedure using other examples. Ask the students to copy the sentences onto their

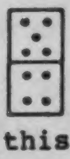
STRATEGY 2: cont'd papers using one side for horizontal format and the other for vertical format.

1.02.04.02 identify the commutative property in addition with sums through ten

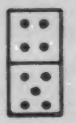
STRATEGY 1: Prepare and distribute ten counting chips and a piece of paper to each student. Say, "Fold your paper in half. Place five chips on the left side of the fold. Place three chips on the right side of the fold. How many chips do you have in all? What is the addition fact for this arrangement?" Write the addition fact, 5 + 3 = 8, on the chalkboard. Say, "Turn your paper so that three chips are on the left side of the fold. How many chips are on the left side? ...right side? How many chips in all? What is the addition fact for what we have now?" Write the addition fact 3 + 5 = 8 below 5 + 3 = 8. Compare the sums. Say, "The sums are the same because the number of chips are the same, even though they are in a different order." Continue this procedure using other examples including addition with 0 as an addend.

STRATEGY 2: Prepare and distribute paper and several dominoes or dot cards to each student. Say, "Take one of your dominoes. Count the number of dots on each side. Write the addition fact on your paper. Turn the domino and count the number of dots on each side. Write the addition fact next to the first one." (Demonstrate.) Ask several students to relate their pair of addition facts. Write the pair on the chalkboard.

e.g.,



$\begin{array}{r}5\\+4\\\hline 9\end{array}$



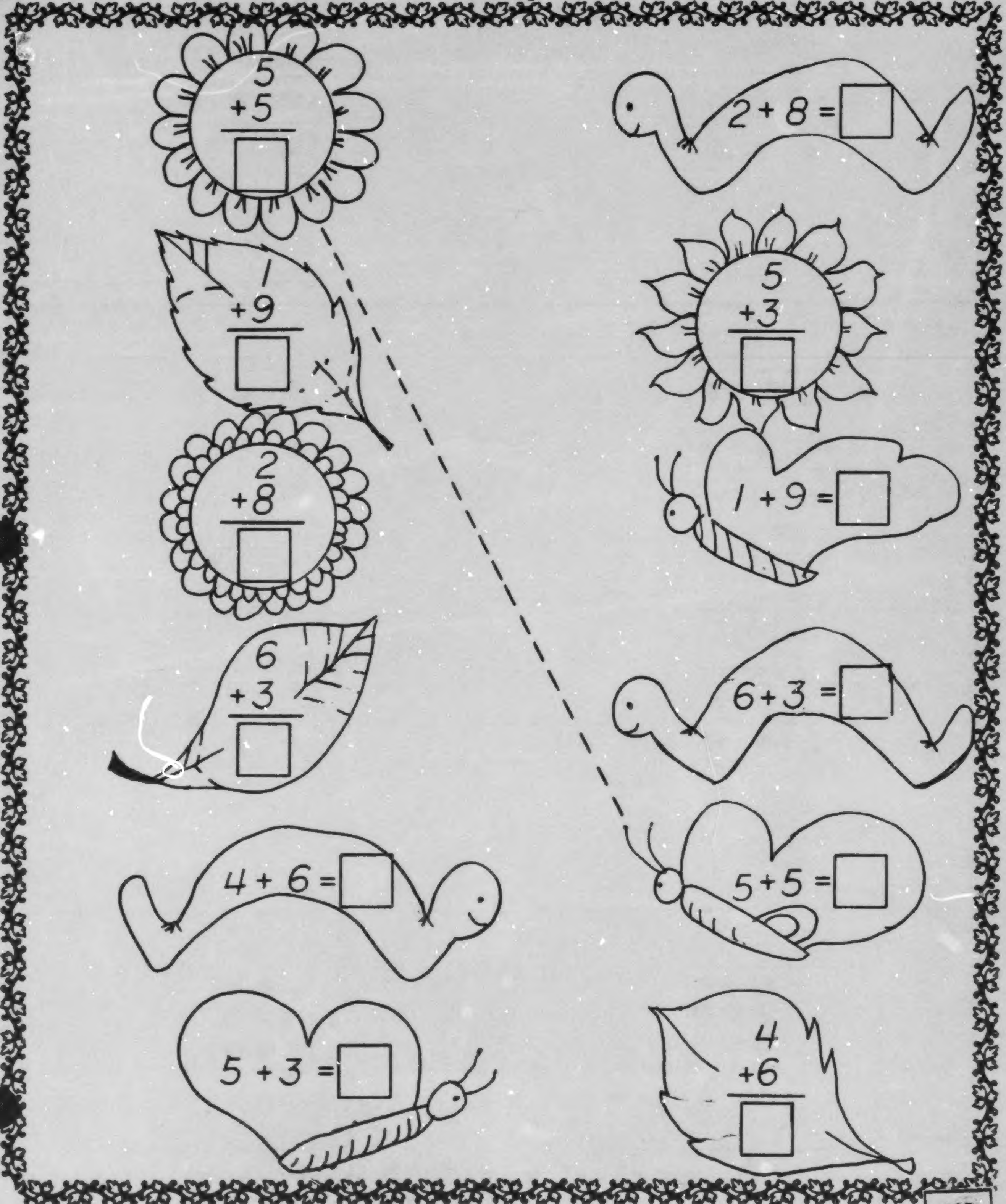
$\begin{array}{r}4\\+5\\\hline 9\end{array}$

Continue this procedure.

P.O. 1.02.04.01

NAME:____ CLASS:__________ DATE:________

Add the numbers. Match the number sentences with the same addends.



$$\begin{array}{r}5\\+5\\\hline\square\end{array}$$

$$\begin{array}{r}1\\+9\\\hline\square\end{array}$$

$$\begin{array}{r}2\\+8\\\hline\square\end{array}$$

$$\begin{array}{r}6\\+3\\\hline\square\end{array}$$

$4 + 6 = \square$

$5 + 3 = \square$

$2 + 8 = \square$

$$\begin{array}{r}5\\+3\\\hline\square\end{array}$$

$1 + 9 = \square$

$6 + 3 = \square$

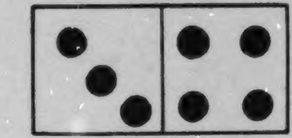
$5 + 5 = \square$

$$\begin{array}{r}4\\+6\\\hline\square\end{array}$$

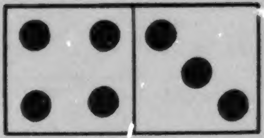
P.O. 1.02.04.02

NAME: ____________________ **CLASS:** __________ **DATE:** ________

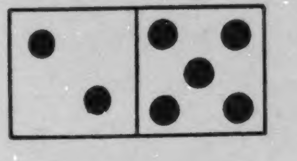
Count the number of dots on each side of the domino.
Write the addition fact the domino shows.



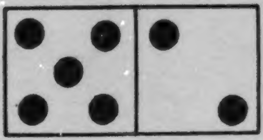
3 + 4 = 7



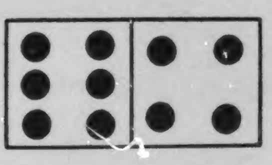
____ + ____ = ____



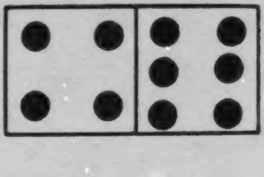
____ + ____ = ____



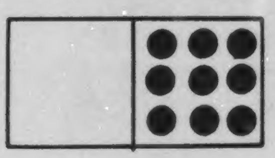
____ + ____ = ____



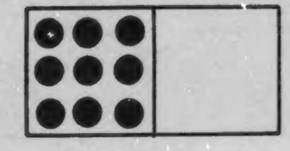
____ + ____ = ____



____ + ____ = ____



____ + ____ = ____



____ + ____ = ____

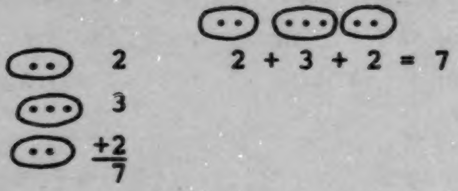
1.02.05 ASSOCIATIVE PROPERTY FOR THREE ADDENDS

(2-3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

1.02.05.01A use addition to name the number of objects in the new set formed by joining three sets, using vertical and horizontal formats; e.g.,

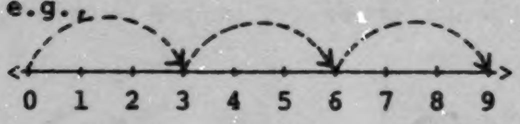


$$\begin{array}{r}2\\3\\\underline{+2}\\7\end{array}\qquad 2 + 3 + 2 = 7$$

1.02.05.02A demonstrate that the order of grouping three addends does not change their sum (associative property); e.g.,

$$\begin{array}{rrrrrr}2&2&3&3&4&4\\3&4&2&4&2&3\\\underline{+4}&\underline{+3}&\underline{+4}&\underline{+2}&\underline{+3}&\underline{+2}\\9&9&9&9&9&9\end{array}$$

*1.02.05.03A record repeated addition of three addends. e.g.



3 + 3 + 3 = 9

1.02.05

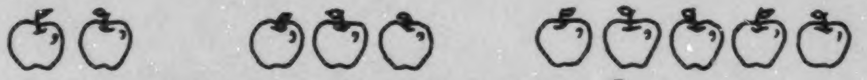
VOCABULARY

TERMS

associative property
addend
horizontal
vertical

GETTING STARTED

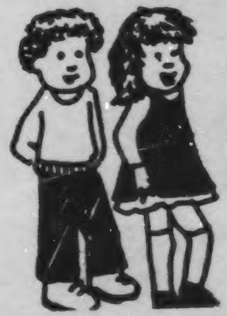
Prepare two groups of ten flannel cutouts, flannel numerals 0 through 10, and flannel "+" and "=". Line up two different groups in horizontal position on the flannelboard. Ask the students to identify the number of objects in each group. Place the corresponding flannel numerals below each group. Join the two groups and ask the students to count the total number of objects. e.g.,

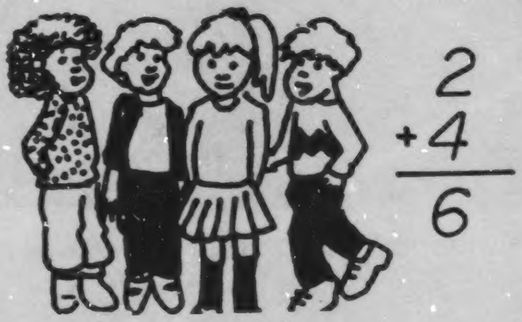


2 + 3 = 5

Repeat this procedure displaying the flannel pieces vertically.

Ask a group of two students and a group of four students to stand in front of the classroom. Say, "How many students are in each group?" Write the numeral for each group in vertical format on the chalkboard. Ask the group of two students to join the group of four. Say, "How many students are there now?" Write 6 under the sum line. Repeat this procedure by changing the order of the addends.





1.02.05

1.02.05 01 **use addition to name the number of objects in the new set formed by joining three sets, using vertical and horizontal formats**

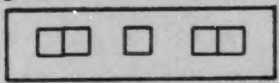
STRATEGY 1: Ask three students to come up to the front of the room. Say, "How many students are standing?" Write the numeral 3 on the chalkboard. Ask two more students to stand. Say, "How many students did I just ask to stand?" Write the numeral 2 on the chalkboard. Ask one more student to stand. Say, "How many more students did I ask to stand?" Write the numeral 1 on the chalkboard. Say, "There are three students standing at the front of the room." Point to the numeral 3 on the chalkboard. Ask the group of two students to go to the front of the room. Say, "How many more students have joined the group of three?" Write a plus sign between the three and the two. Ask the last student to stand in the front of the room along side the others. Write a plus sign between the two and the one. Say, "Let's see how many students there are altogether." Stand behind the group of three. Say, "How many?" Stand behind the group of two. Say, "How many? How much does three and two more equal?" Stand behind the last student. Say, "How much does five and one more equal? Altogether there are six students standing." Ask the students to sit down. Say, "Let's look at the numerals on the chalkboard and add them together just as we did with the students." Develop the horizontal algorithm 3 + 2 + 1 = 6. Rewrite the algorithm in vertical form. Continue this procedure using different groups of students.

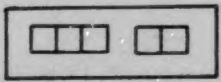
STRATEGY 2: Prepare and distribute ten interlocking cubes and placemats to each student. Say, "Place two cubes on your placemat. Place one more cube on your

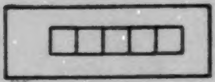
STRATEGY 2:
cont'd

placemat near the first group and finally place two more cubes on your placemat. Say, "Who would like to tell us about their groups of cubes? What number sentence can we write to tell about our cubes?" Write the horizontal algorithm on the chalkboard. 2 + 1 + 2 = . Ask the students to turn their placemats to a vertical position. Say, "How many cubes are near the top, in the middle, near the bottom?" Write the vertical algorithm on the chalkboard. Ask the students to turn the placemat to its original position. Say, "Join the group of two cubes with the group of one cube. How many cubes are now joined together? (3) Join the last group of two with the others. How many do we have in all?" (5)

e.g.,


Step 1


Step 2


Step 3

Direct the students' attention to the algorithms written on the chalkboard. Ask a student to add the three sets together 2 + 1 + 2 = 5 or

$$\begin{array}{r} 2 \\ 1 \\ \underline{+2} \\ 5 \end{array}$$

Continue with other examples.

1.02.05.02 **demonstrate that the order of grouping three addends does not change their sum (associative property)**

STRATEGY 1: Prepare a zero through nine number line on the floor using masking tape or number line tape. Write 3 + 1 + 2 = on the chalkboard horizontally and vertically. Say, "Who would like to jump on the number line to show the sum of 3 + 1 + 2?" Ask a student to start at zero and jump to 3. Say, "Jump one more space. Jump two more spaces. Where

STRATEGY 1: cont'd are you? (6) We just saw our jumper add 3 + 1 + 2 and we found that the sum was 6. Who would like to jump the numbers 1 + 3 + 2 = ☐?" Write the number sentence vertically on the chalkboard.

Repeat this procedure to reinforce the understanding that the sum is not affected by the order of the addends.

STRATEGY 2: Prepare and distribute bead frames to each student. Write 4 + 2 + 3 = ☐ in vertical format on the chalkboard. Say, "Move four beads to the right side of the frame. Let's count together as we move each bead. What does plus 2 mean? (Add two more.) How many beads are now on the right?" Write 6 on the chalkboard. Say, "We have one more number to add. What does plus 3 mean? (Add three more beads and move them to the right.) How many beads are now on the right side of your bead frame?"

Repeat this procedure using three other addends with sums through nine. Reinforce the understanding that the order of the addends does not affect the sum.

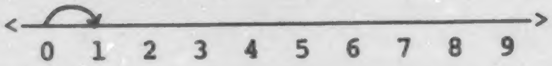
1.02.05.03 record repeated addition of three addends

STRATEGY 1: Prepare and distribute number lines labeled 0 through 9. Tape the number line on each student's desk and display a large number line on the chalkboard. Write 1 + 1 + 1 = 3 on the chalkboard.

Say, "Whenever we use a number line to add, we always start at zero. Put your pencil eraser above the zero on your number line. What is the first addend in the example written on the chalkboard? (1) Let's count one space on our number line and make a loop from zero to one." Demonstrate.

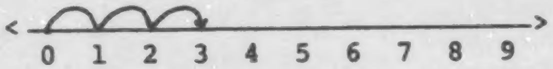
STRATEGY 1: cont'd

e.g.,



Say, "What is the second addend? ...third addend? Jump one space for each addend and make the loops on your number line. What number did you land on? 1 + 1 + 1 = 3." Write the completed number sentence on the chalkboard.

e.g.,



1 + 1 + 1 = 3

Repeat this procedure with other examples.

STRATEGY 2: Prepare and display fifteen flashcards: three with the numeral 1, three with the numeral 2, four with the numeral 3, the numerals 6 and 9, two plus (+) symbols and one equal (=) symbol.

Say, "Bruce, Darin and Carlos each brought an apple for lunch. How many apples do they have in all? How many apples did Bruce bring?" Write 1 on the chalkboard. Repeat this procedure for Darin and Carlos. Say, "What symbol do we need to show that we are adding these numbers?" Place the plus symbols between the numbers. Say, "What symbol do we place before the answer in an addition example?" Place the equal symbol after the numbers. Say, "How do we read this number sentence? When we add these numbers, we add the first two numbers and then add the third number to the sum of the first two numbers. How many apples did the boys bring in all?"

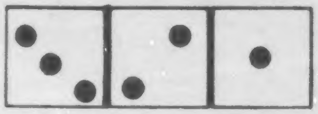
Repeat this procedure by creating other stories for the numbers sentences 2 + 2 + 2 = 6 and 3 + 3 + 3 = 9.

P.O. 1.02.05.01

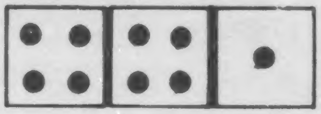
NAME: ____________________ CLASS: ________ DATE: ________

Count each group of dots.
Write the number under each group.
Add the numbers to find the sum.

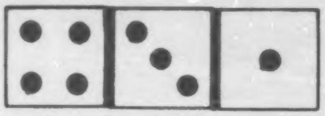
A.



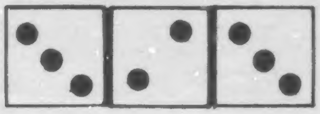
3 + 2 + 1 = ☐6



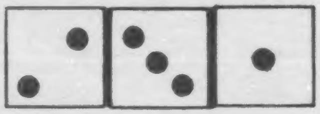
___ + ___ + ___ = ☐



___ + ___ + ___ = ☐

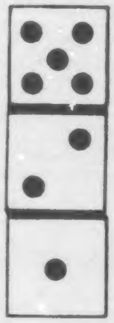


___ + ___ + ___ = ☐

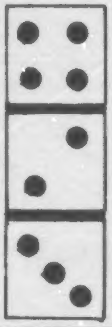


___ + ___ + ___ = ☐

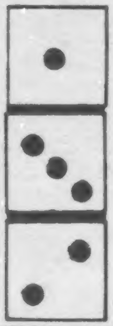
B.



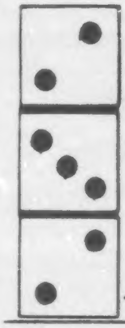
5
2
+ 1
☐8



___
___
+ ___
☐



___
___
+ ___
☐



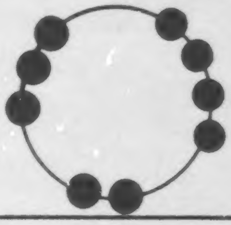
___
___
+ ___
☐

P.O. 1.02.05.02

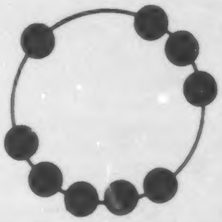
NAME: ______________________ CLASS: __________ DATE: ________

Find the matching example.
Count the beads and write the sum.

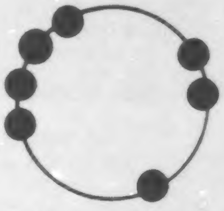
4 + 3 + 8	5 + 7 + 3
6 + 2 + 4	0 + 9 + 1
7 + 3 + 5	6 + 2 + 3
1 + 0 + 9	8 + 3 + 4
5 + 9 + 1	1 + 9 + 5
6 + 3 + 2	2 + 6 + 4



$\begin{array}{r} 4\\ 2\\ +3\\ \hline \boxed{} \end{array} \quad \begin{array}{r} 3\\ 2\\ +4\\ \hline \boxed{} \end{array} \quad \begin{array}{r} 2\\ 3\\ +4\\ \hline \boxed{} \end{array}$



$\begin{array}{r} 3\\ 5\\ +1\\ \hline \boxed{} \end{array} \quad \begin{array}{r} 5\\ 3\\ +1\\ \hline \boxed{} \end{array} \quad \begin{array}{r} 3\\ 1\\ +5\\ \hline \boxed{} \end{array}$



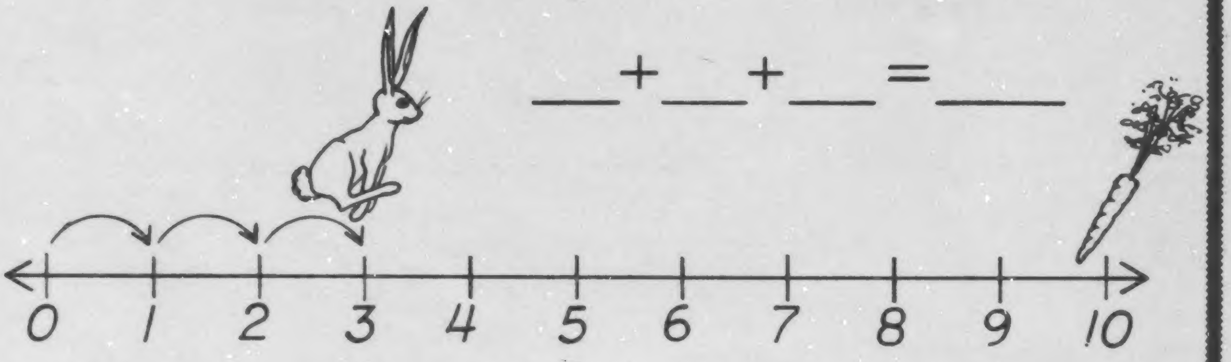
$\begin{array}{r} 1\\ 2\\ +4\\ \hline \boxed{} \end{array} \quad \begin{array}{r} 2\\ 4\\ +1\\ \hline \boxed{} \end{array} \quad \begin{array}{r} 1\\ 4\\ +2\\ \hline \boxed{} \end{array}$

P.O. 1.02.05.03

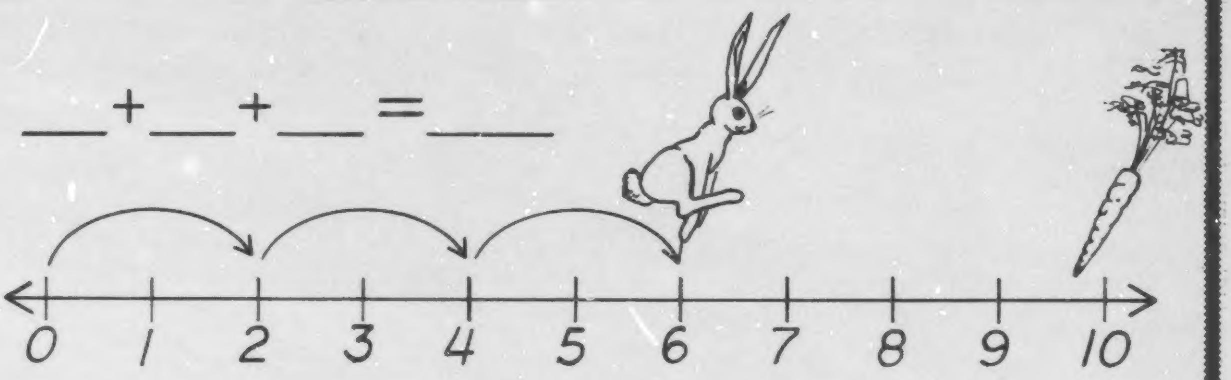
NAME:______________________ CLASS:__________ DATE:________

Write the number sentence to show how the bunny hopped.

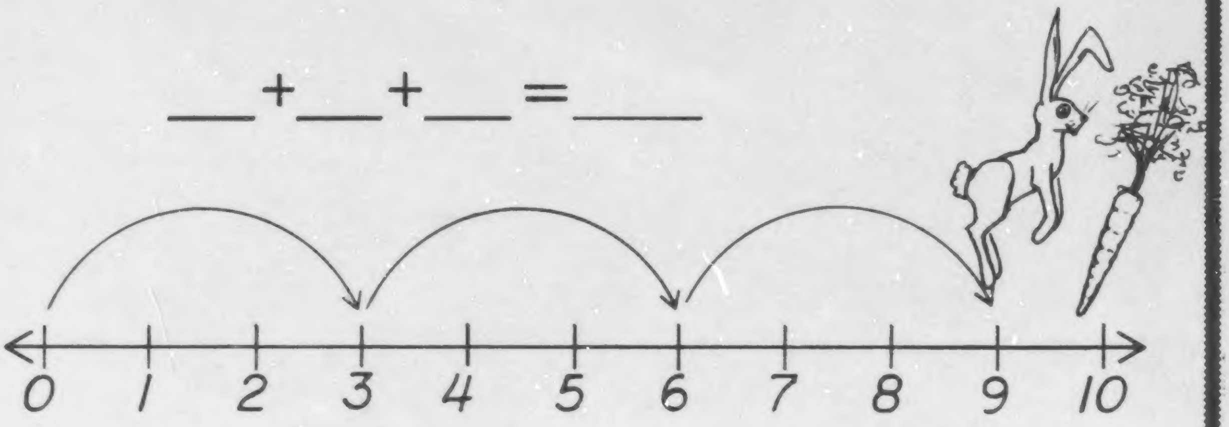
___+___+___=_____


0
1
2
3
4
5
6
7
8
9
10

___+___+___=_____


0
1
2
3
4
5
6
7
8
9
10

___+___+___=_____


0
1
2
3
4
5
6
7
8
9
10

1.03.05 SUBTRACTION FACTS THROUGH TEN

(3-4 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

1.03.05.01A subtract numbers to obtain differences from 1 through 10;
e.g.,

$$\begin{array}{rrrrrrr} 9 & 8 & 7 & 6 & 5 & 4 & 3 \\ -1 & -4 & -4 & -5 & -1 & -3 & -0 \\ \hline 8 & 4 & 3 & 1 & 4 & 1 & 3 \end{array}$$

1.03.05.02A write a subtraction sentence using horizontal and vertical formats for minuends through 10.
e.g.,

$$\begin{array}{r} 5 \\ -3 \\ \hline 2 \end{array} \qquad \begin{array}{r} 9 \\ -7 \\ \hline 2 \end{array} \qquad \begin{array}{l} 5 - 3 = 2 \\ 9 - 7 = 2 \end{array}$$

1.03.05

VOCABULARY

TERMS	SYMBOLS
subtract	-
take away	
minus	
zero	0

GETTING STARTED

Play "Directional Giant Steps". Begin the game without a number line; then add a floor number line. Say, "Hop three times. Jump back once. Walk ahead two steps. Go back one step. Take three umbrella turns. Go back three baby steps. Take four giant steps, ..." When repeating this activity on the number line, discuss where each student landed.

Dramatize and recite the fingerplay "Ten in the Bed".

"There were ten in the bed and the little one said,
'Roll over, roll over', so they all rolled over and one fell out -
There were nine in the bed and the little one said -
'Roll over, roll over' ..."

Continue counting backward until - "There was one in the bed and the little one said,
'Good night'."

1.03.05

1.03.05.01 **subtract numbers to obtain differences from 1 through 10**

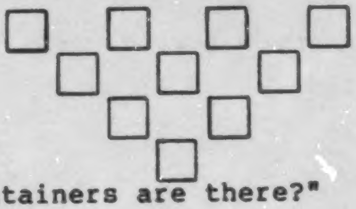
STRATEGY 1: Prepare and distribute 10 counters to each student. Say, "Joe has 10 buttons. He lost 3 buttons. How many does he have left?"

Ask the students to display 10 counters. Say, "How many buttons does Joe have? How many buttons did he lose? Take away three counters for the 3 buttons that were lost. How many are left?" Ask a student to write the number sentence for the problem on the chalkboard.

Repeat this procedure with similar problems.

STRATEGY 2: Prepare ten milk containers and a ball. Say, "Have any of you ever gone bowling?" Describe the game. Emphasize the fact that the game is played with 10 pins. Say, "We are going to bowl and we will use milk containers for the pins." Display the milk containers in a triangular arrangement.

e.g.,



Say, "How many containers are there?" (10) Ask a student to roll the ball. Say, "How many milk containers did John knock down? How many containers are left standing?"

Repeat this procedure until each student has had a chance to participate.

1.03.05

1.03.05.02 **write a subtraction sentence using horizontal and vertical formats for minuends through 10**

STRATEGY 1: Prepare and display a flannelboard, flannel cutouts of 10 apples and a tree. Ask a student to count the apples. Say, "10 apples were on a tree. 2 apples fell from the tree." Remove two apples from the flannelboard and ask a student to write the corresponding number sentence on the chalkboard.

e.g.,

$$10 - 2 = \square \qquad \begin{array}{r} 10 \\ \underline{-2} \end{array}$$

Say, "How many apples are still on the tree?" (8) Ask a student to complete the number sentence.

$$10 - 2 = 8 \qquad \begin{array}{r} 10 \\ \underline{-2} \\ 8 \end{array}$$

Ask students to come to the flannelboard and tell another subtraction story using the ten cutouts. Have other students write the number sentence for each story on the chalkboard in both horizontal and vertical format.

STRATEGY 2: Prepare and distribute 10 counters to each student. Ask the students to use their counters to solve number stories.

Say, "10 cupcakes were on a table. Tom ate 1 cupcake. How many cupcakes were left?"

Ask a student to come to the chalkboard. Say, "Tell us the number sentence for this story." Ask the student to record the number sentence on the chalkboard in both horizontal and vertical format.

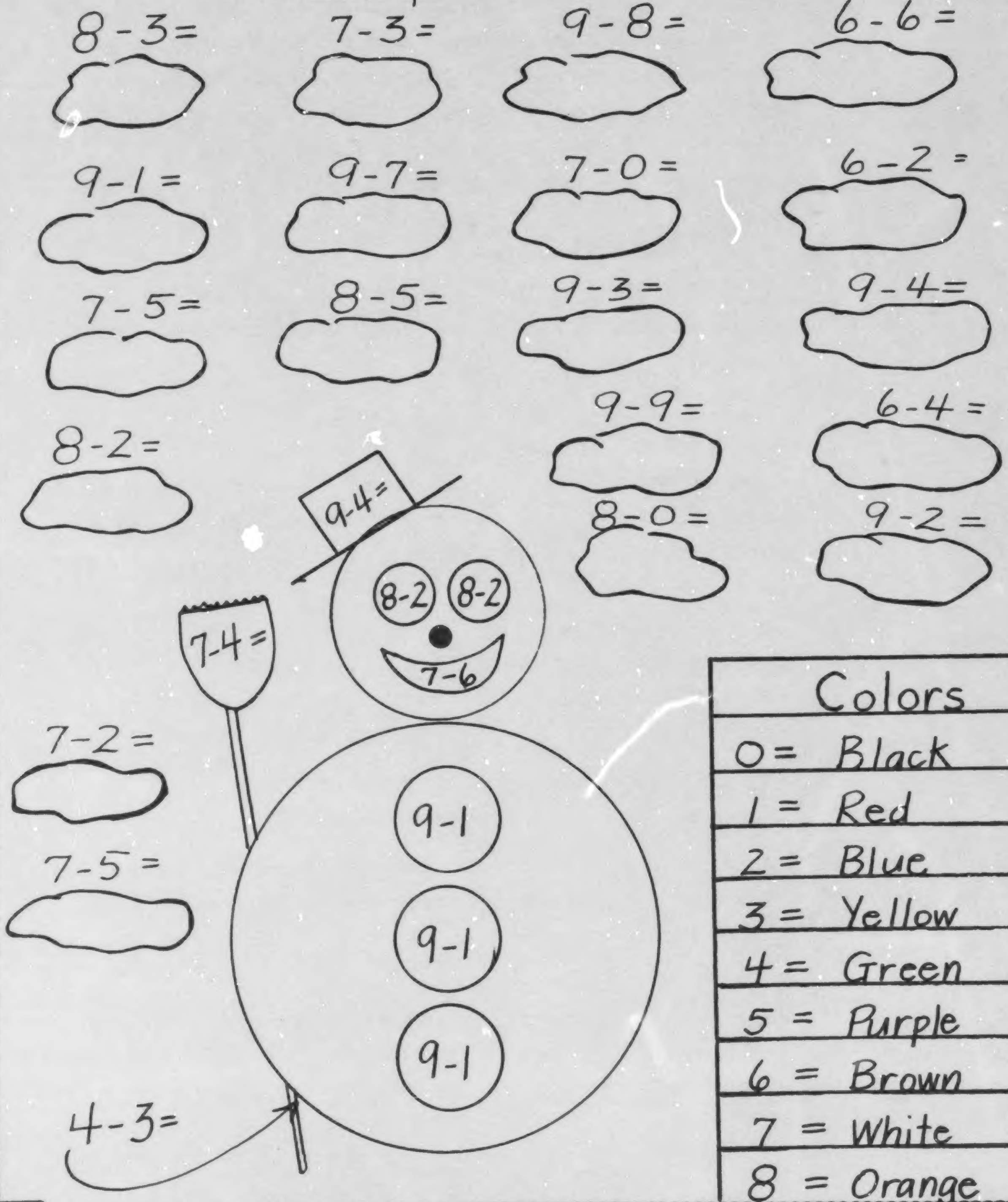
Repeat this procedure using other subtraction story problems.

P.O. 1.03.05.01

NAME:________________________ CLASS:__________ DATE:________

Use a number line or counters to help you find the answer for each example. Write the answers in the snowflakes. Use the chart at the bottom of the page to help you color the snowflakes and snowman.

Funny Snow

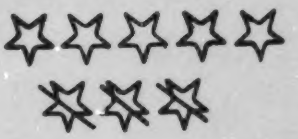

8-3=
7-3=
9-8=
6-6=
9-1=
9-7=
7-0=
6-2=
7-5=
8-5=
9-3=
9-4=
9-9=
6-4=
8-2=
9-4=
8-0=
9-2=
8-2
8-2
7-4=
7-6
7-2=
9-1
7-5=
9-1
9-1
4-3=

Colors
0= Black
1 = Red
2 = Blue
3 = Yellow
4 = Green
5 = Purple
6 = Brown
7 = White
8 = Orange

P.O. 1.03.05.02

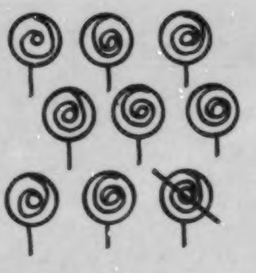
NAME:__________________________________CLASS:________DATE:_______

Write the answer for each number sentence.



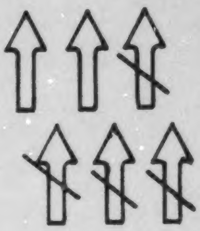
$$\begin{array}{r} 8 \\ -3 \\ \hline 5 \end{array}$$

$8-3=\boxed{5}$



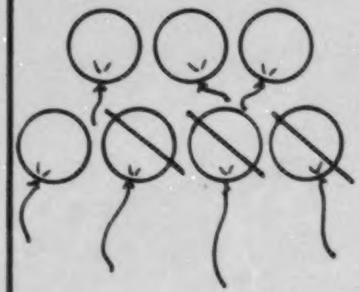
$$\begin{array}{r} 9 \\ -1 \\ \hline \end{array}$$

$9-1=\boxed{}$



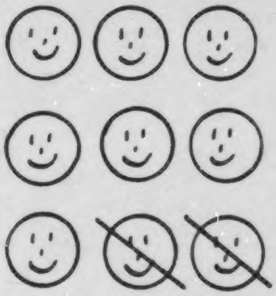
$$\begin{array}{r} 6 \\ -4 \\ \hline \end{array}$$

$6-4=\boxed{}$



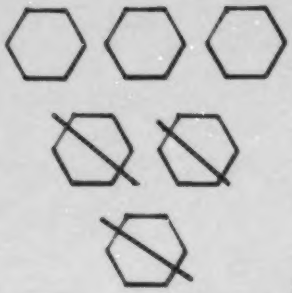
$$\begin{array}{r} 7 \\ -3 \\ \hline \end{array}$$

$7-3=\boxed{}$



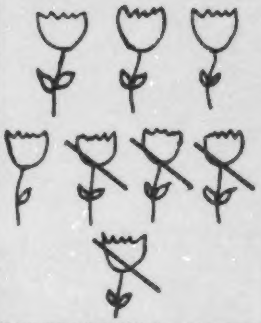
$$\begin{array}{r} 9 \\ -2 \\ \hline \end{array}$$

$9-2=\boxed{}$



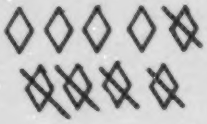
$$\begin{array}{r} 6 \\ -3 \\ \hline \end{array}$$

$6-3=\boxed{}$



$$\begin{array}{r} 8 \\ -4 \\ \hline \end{array}$$

$8-4=\boxed{}$



$$\begin{array}{r} 9 \\ -5 \\ \hline \end{array}$$

$9-5=\boxed{}$

1.03.06 NUMBER FAMILIES THROUGH TEN

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

1.03.06.01A identify related addition and subtraction facts through ten;

e.g.,

8 + 1 = 9   9 - 8 = 1

1 + 8 = 9   9 - 1 = 8

1.03.06.02A choose operation symbols for facts having sums and differences through 10.

e.g.,

4 ⊕ 5 = 9   9 ⊖ 5 = 4

5 ⊕ 4 = 9   9 ⊖ 4 = 5

1.03.06

VOCABULARY

TERMS

symbol
number sentence

GETTING STARTED

Say, "I am going to give John six beans. John is going to place some of these beans in each hand." John, with his back to the class, divides the beans, placing some in each hand. Say, "Who can guess how many beans are in each hand?"

List all the combinations of six on the chalkboard as the students guess them.

e.g.,

Left Hand		Right Hand
2	+	4
3	+	3
5	+	1
4	+	2
1	+	5
0	+	6

Ask John to open his hands and show the amount of beans to another student. Ask the second student to circle the correct guess listed on the chalkboard.

Continue this procedure using one through nine beans.

Prepare a set of ten cards with a house drawn on each card. Number the houses 0 through 9. Place the cards on desks around the room. Place a stack of cards with addition and subtraction examples on another table. Play "Mail Carrier". Each Mail Carrier takes an index card, solves the problem, and delivers it to the appropriate house.

1.03.06

1.03.06.01 **identify related addition and subtraction facts through ten**

STRATEGY 1: Hold six pencils in one hand. Say, "How many pencils are in my hand? Bert, take away two pencils. How many pencils do I have left? How many pencils do you have? How many pencils do we have altogether?" Write the related addition and subtraction facts on the chalkboard.

e.g.,

$6 - 2 = 4 \qquad 4 + 2 = 6$

Hold up the six pencils. Say, "Take away four pencils. How many pencils do I have now? How many pencils do you have? How many pencils do we have altogether?" Write the related addition and subtraction facts on the chalkboard.

e.g.,

$6 - 2 = 4 \qquad 2 + 4 = 6$

$6 - 4 = 2 \qquad 4 + 2 = 6$

Say, "Which three numerals appear in every number sentence on the chalkboard?" (2, 4 and 6)

Repeat this procedure with other related addition and subtraction facts.

STRATEGY 2: Prepare and distribute a placemat and ten discs to each student. Ask the students to place three discs on the left hand side and four discs on the right hand side of the placemat. Say, "How many discs are on the left hand side of the placemat? How many discs are on the right hand side of the placemat? How much is three plus four?" Write the addition algorithm on the chalkboard. Say, "Turn your placemats around so that there are four discs on the left hand side." Demonstrate. Ask a student to describe the arrangement of discs on the placemat and write the matching algorithm on the chalkboard:

STRATEGY 2: cont'd

e.g., ○○○ ○○○○ 3 + 4 = 7
○○○○ ○○○ 4 + 3 = 7

Say, "How many discs do we have in all?" Write the numeral 7 on the chalkboard. Say, "Cover 3 discs. How many are uncovered?" Complete the subtraction algorithm 7 - 3 = 4. Say, "There are 7 discs in all, now cover four of them. How many discs are uncovered?" Ask a student to write the subtraction algorithm (7 - 4 = 3) on the chalkboard . Say, "Look at the four algorithms on the chalkboard. How are they alike? ...different?" Ask the students to use five discs and make up their own addition and subtraction stories. The students may write their related number sentences in their notebooks. Discuss the different number sentences the students have written.

e.g.,

2 + 3 = 5   4 + 1 = 5
3 + 2 = 5   1 + 4 = 5
5 - 3 = 2   5 - 1 = 4
5 - 2 = 3   5 - 4 = 1

1.03.06.02 **choose operation symbols for facts having sums and differences through 10**

STRATEGY 1: Prepare and display eight paper fish. Draw an outline of a fishbowl on the chalkboard. Tape the eight fish within the outline of the fishbowl. Tell the following fish story: "Eight fish were in the bowl. Three fish jumped out of the bowl." Remove three fish. Say, "Five fish are left." Write 8   3 = 5 on the chalkboard. Say, "The symbol to complete this number sentence is missing. Who can write it in? Why did you use the minus sign?"

STRATEGY 1: cont'd Repeat this procedure with other stories.

STRATEGY 2: Prepare and display a minus (-) and a plus (+) symbol drawn on oaktag. Using magnetic discs place the following example on a magnetic board:

e.g.,

○○○ ○○ = 5

Say, "What is missing from this number picture? Who can find the symbol that belongs in the picture and hold it in place? What are we doing to the discs so that they equal 5?"

Write addition and subtraction facts on the chalkboard. Ask the students to place the correct symbol in each box. Ask the students to tell why they chose the symbol they placed in the box.

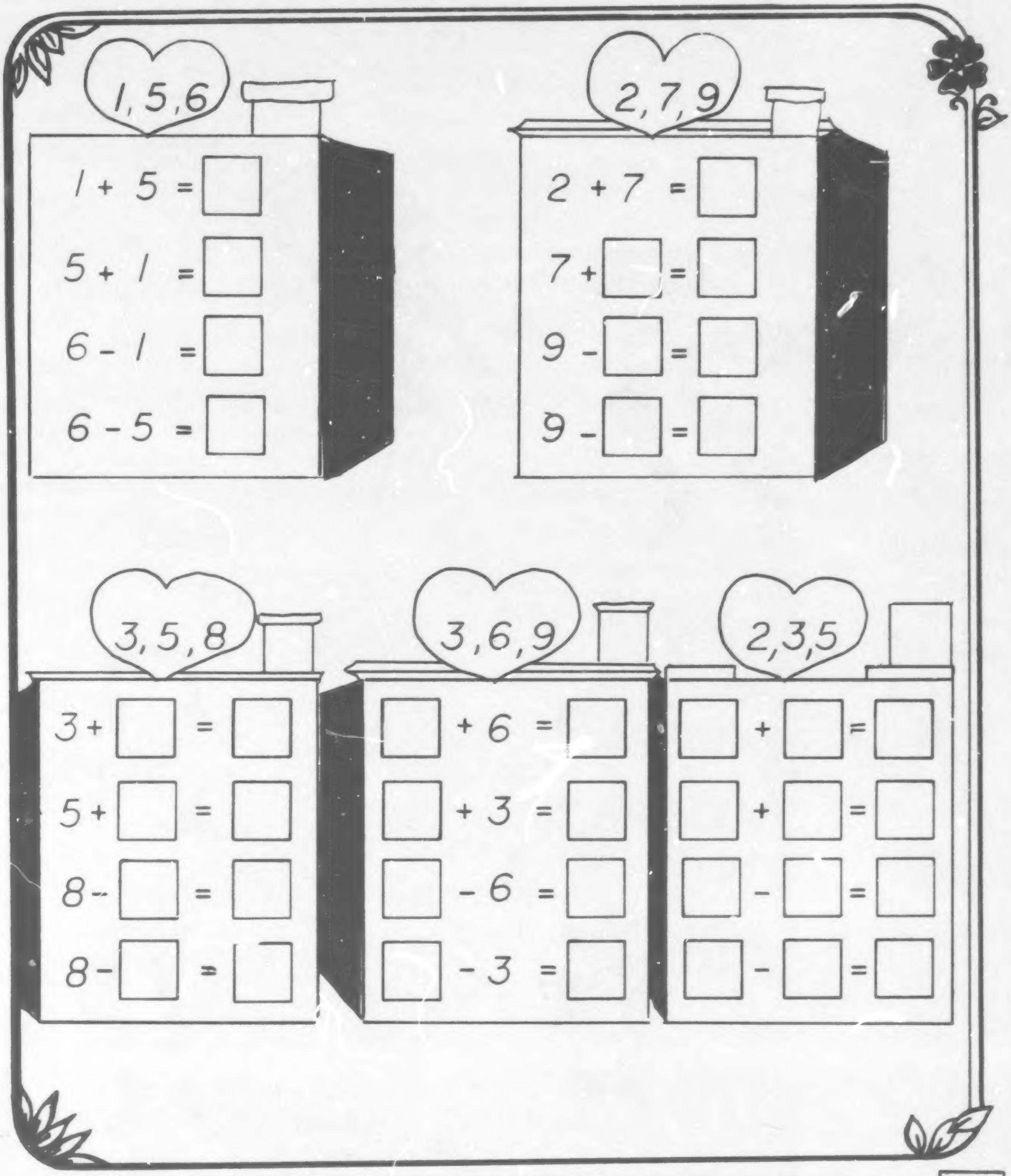
e.g.,

3 □ 6 = 9
2 □ 2 = 4
8 □ 1 = 7
7 □ 3 = 10
4 □ 1 = 3
9 □ 5 = 4
4 □ 5 = 9

P.O. 1.03.06.01

NAME: ______________________ CLASS: __________ DATE: ________

Complete each number sentence using the three numbers in the heart.



1,5,6

1 + 5 = ☐

5 + 1 = ☐

6 - 1 = ☐

6 - 5 = ☐

2,7,9

2 + 7 = ☐

7 + ☐ = ☐

9 - ☐ = ☐

9 - ☐ = ☐

3,5,8

3 + ☐ = ☐

5 + ☐ = ☐

8 - ☐ = ☐

8 - ☐ = ☐

3,6,9

☐ + 6 = ☐

☐ + 3 = ☐

☐ - 6 = ☐

☐ - 3 = ☐

2,3,5

☐ + ☐ = ☐

☐ + ☐ = ☐

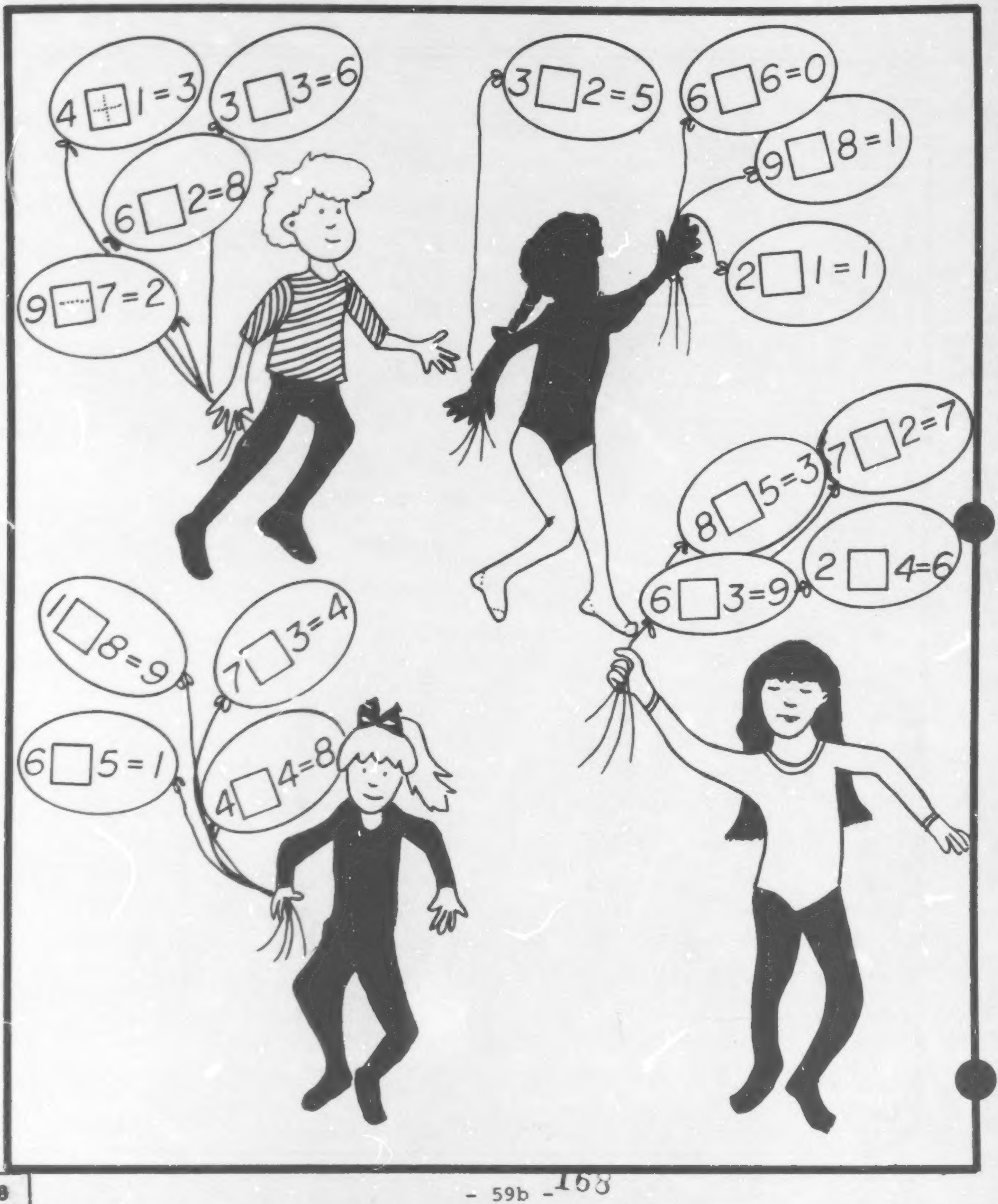
☐ - ☐ = ☐

☐ - ☐ = ☐

P.O. 1.03.06.02

NAME:____CLASS:__________DATE:________

Fill in the correct symbol for the addition or subtraction fact.


4 $\boxed{+}$ 1=3
3 □ 3=6
6 □ 2=8
9 $\boxed{-}$ 7=2
3 □ 2=5
6 □ 6=0
9 □ 8=1
2 □ 1=1
8 □ 5=3
7 □ 2=7
2 □ 4=6
6 □ 3=9
1 □ 8=9
7 □ 3=4
6 □ 5=1
4 □ 4=8

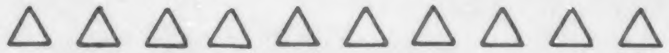
1.01.14 ORDINAL NUMBERS FIRST THROUGH TENTH

(1 lesson)

PERFORMANCE OBJECTIVES

The student will be able to...

*1.01.14.01A identify the ordinal position of each object in a row, through 10 objects; e.g.,



Start here: 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th

1.01.14.02B match the ordinal number names first through tenth to the cardinal numbers 1 through 10.
e.g.,

	first	second	third	fourth	fifth	sixth	seventh	eight	ninth	tenth
Start here:	1	2	3	4	5	6	7	8	9	10

1.01.14

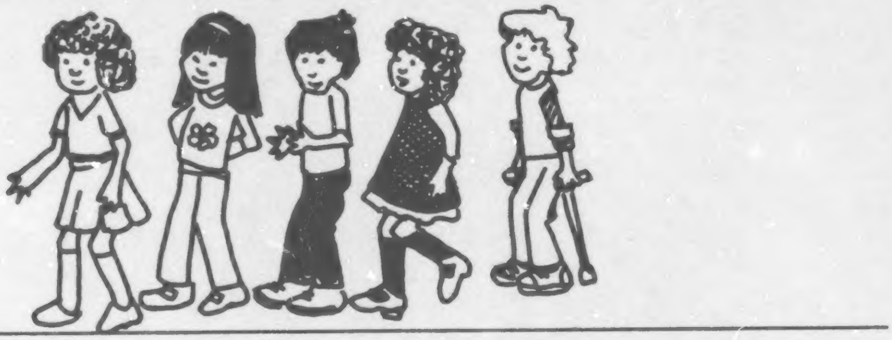
VOCABULARY

TERMS	SYMBOLS	TERMS	SYMBOLS
first	1st	sixth	6th
second	2nd	seventh	7th
third	3rd	eighth	8th
fourth	4th	ninth	9th
fifth	5th	tenth	10th
after			

GETTING STARTED

Ask five students to stand in a line facing left. Say, "Who is first? ...second? ..." Ask the third student to touch his/her nose, the fifth student to touch his/her toes... Ask other students to change places with them and repeat this procedure.

e.g.,



Prepare and display ten blocks of different colors on the chalkboard ledge. Ask the students to identify the colors and count the blocks. As the students count the blocks, write the numeral above each block.

e.g.,

Say, "What color is block number one?" Continue this procedure for the remaining blocks.

1.01.14

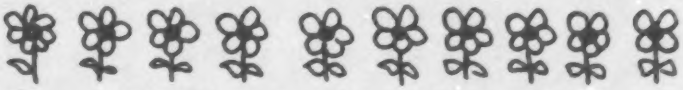
1.01.14.01 **identify the ordinal position of each object in a row, through 10 objects**

STRATEGY 1: Ask five students to come to the front of the classroom and line up facing left. Hold your hand above each student's head and say, "John is first. Maria is second. ...James is fifth." Ask another student to join the line. Hold your hand above this student's head and say, "Mark is sixth." Repeat this procedure until ten students are in line.

As you say each ordinal number, ask the students to repeat it. Ask the sixth student to clap his/her hands, the ninth to touch his/her shoulders... Ask a seated student to change places with the eighth in line, another to change places with the fourth in line...

STRATEGY 2: Prepare and display a chart having ten flowers arranged horizontally.

e.g.,



Ask the students to count the flowers. Identify the ordinal position of each flower. Point to each flower and say, "First, second... " Ask the students to repeat each ordinal number. Ask a student to come up to the chart and draw an X on the second flower, the fifth flower... until all of the flowers have been marked. Continue this procedure by asking the students to color the fourth flower, the sixth flower... until all the flowers have been colored.

1.01.14

1.01.14.02 **match the ordinal number names first through tenth to the cardinal numbers 1 through 10**

STRATEGY 1: Prepare and display a set of ordinal number cards (first through tenth) on the chalkboard ledge. Write the numerals 1 through 10 on the chalkboard. Hold up the ordinal number cards and ask the students to identify each one. Say, "We are going to match each ordinal number card with the numerals 1 through 10." Replace the cards on the chalkboard ledge so that the blank side is facing the students. Ask a student to come up and select a card. Then ask the student to read the ordinal number name and match it to the cardinal number it represents.

Repeat this procedure until all the cards have been matched.

STRATEGY 2: Prepare a set of ordinal number cards (first through tenth) and a set of cardinal number cards (1 through 10). Distribute the cardinal number cards to the students. Say, "I am going to call out a number. If you are holding the card with the number I call come up to the front of the room." After the numbers 1 through 10 have been called, ask the students to form a line in correct counting order (1, 2... 10). Distribute the ordinal number cards to ten different students. Say, "John is holding number one. He is first on line. Who has a card with the ordinal name first?" Ask that student to come and stand in front of number one.

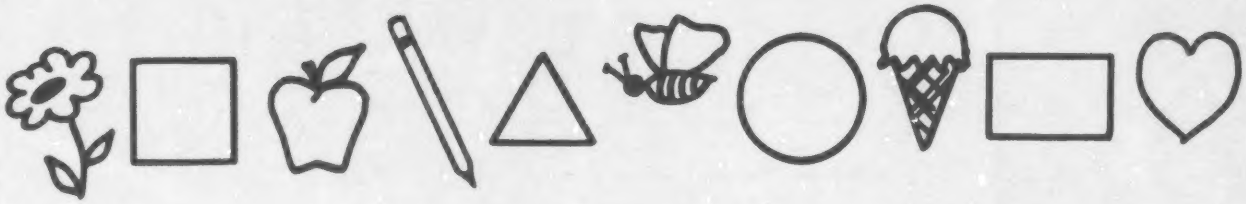
Repeat this procedure through the ordinal number name tenth.

P.O. 1.01.14.01

NAME:______________________________ **CLASS:**__________ **DATE:**________

Look at the pictures. Circle the ordinal number that completes each sentence.

Find the place of each picture.



The 🌼 is 9th [✓ 1st] 4th

The △ is 5th 3rd 1st

The ♡ is 6th 10th 8th

The 🍦 is 2nd 7th 8th

The □ is 8th 2nd 1st

The 🐝 is 8th 6th 10th

The 🍎 is 4th 2nd 3rd

The ○ is 7th 8th 9th

The ✏ is 3rd 4th 5th

The ▭ is 5th 7th 9th

P.O. 1.01.14.02

NAME: ______________________ CLASS: __________ DATE: __________

Draw a line from the numeral to the matching word.

Draw a Line

1	-----first
2	second
3	third
4	fourth
5	fifth
6	sixth
7	seventh
8	eighth
9	ninth
10	tenth

Draw a Line

1	second
2	fifth
3	first
4	third
5	fourth
6	eighth
7	sixth
8	tenth
9	seventh
10	ninth

Unit 54

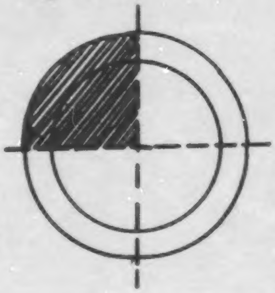
1.06.02 FOURTHS

(2-3 lessons)

PERFORMANCE OBJECTIVES

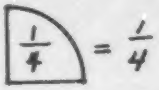
The student will be able to...

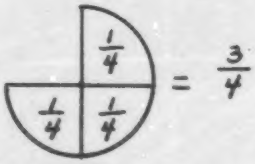
1.06.02.01B separate representative objects into fourths;
e.g.,

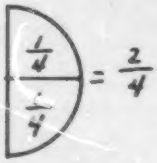


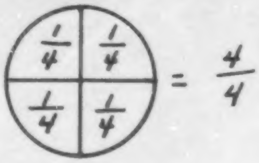
$\frac{1}{4}$ of a full circle

1.06.02.02B identify and write fractional notation for one-fourth as $\frac{1}{4}$, for two-fourths as $\frac{2}{4}$, for three-fourths as $\frac{3}{4}$, for four-fourths as $\frac{4}{4}$;
e.g.,

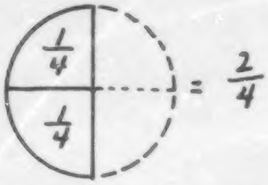


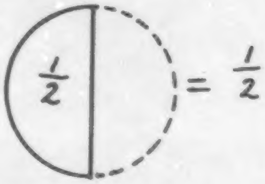






1.06.02.03B identify $\frac{1}{2}$ as equal to $\frac{2}{4}$ pictorially, and record using the equal symbol (=);
e.g.,





1.06.02.04B solve story problems related to skills learned in this module.

e.g.,

Sara, Judy, Lorraine and Rochelle want to share a cake. Into how many equal pieces should they cut the cake?

The cake should be cut into four equal pieces. Why?

What part of the cake will each girl get?

Each girl will get one-fourth ($\frac{1}{4}$) of the cake.

177

456

1.06.02

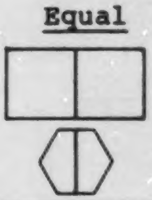
VOCABULARY

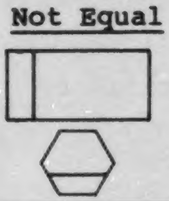
TERMS	SYMBOLS
one-fourth	$\frac{1}{4}$
two-fourths	$\frac{2}{4}$
one-half	$\frac{1}{2}$
three-fourths	$\frac{3}{4}$
four-fourths	$\frac{4}{4}$
equal	=
whole	

GETTING STARTED

Label two columns on the chalkboard: Equal Parts and Not Equal Parts. Display pictures of shapes or objects which have been folded into equal and unequal parts. Hold up a picture and say, "What is this picture? Into how many parts has this picture been folded? Are the parts equal to each other?" Have the students tape each picture under the appropriate column.

e.g.,





Prepare and distribute several objects to each pair of students. Ask the students to share the objects equally. Then ask the students to describe how they shared the objects and how they know they each have the same amount. e.g., counting, one-to-one correspondence...

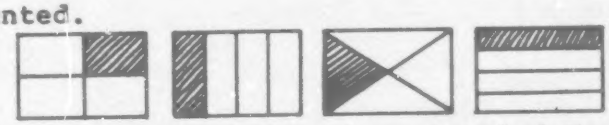
1.06.02

1.06.02.01 **separate representative objects into fourths**

STRATEGY 1: Prepare and distribute crayons and an assortment of paper shapes. Display a shape that can be easily folded into fourths. (e.g., a square) Say, "What is the name of this shape? How many parts does it have?" (1) Fold the paper in half and say, "Fold your paper the way I folded mine. Open up your paper. Count the parts. How many parts are there? Are they the same? What do we call each part? (one-half) Fold your papers again. Open up the paper and place it on your desk. Count the parts. How many pieces of paper did we fold? (1) How many parts do we have? (4) Are all of the parts the same size? With your crayon, color in one part. How many parts did you color? How many parts are there altogether? You colored one of the four equal parts. You colored one-fourth of the square."

Repeat this procedure with the other papers. Display several completed papers to show the different ways in which one fourth may be represented.

e.g.,

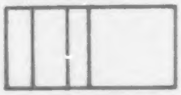


STRATEGY 2: Display a chart with one column labeled Fourths and the other labeled Not Fourths. Each column should show two examples in the form of shapes. Point to the Fourths column and say, "These shapes have been folded into four equal parts." Point to the Not Fourths column and say, "These shapes are folded into four parts that are not equal." Display a picture of a divided shape and say, "In which column should we place this picture? Why?" Ask a student to tape it in the appropriate column. Repeat this procedure with other pictures.

e.g.,

Fourths

Not Fourths



1.06.02

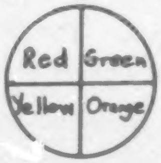
1.06.02.02 **identify and write fractional notation of one-fourth as $\frac{1}{4}$, two-fourths as $\frac{2}{4}$, three-fourths as $\frac{3}{4}$, four-fourths as $\frac{4}{4}$**

STRATEGY 1: Prepare and distribute four squares of paper and crayons to each student. Say, "Take one square and fold it like this. (Demonstrate folding fourths.) Open your square and place it on your desk. How many squares did we fold? Count the boxes. How many are there? We folded one square into four equal parts. Take your yellow crayon and color in one part of the square. (Demonstrate) How many parts are yellow? How many parts are there in all? A simple way to write one part of four is $\frac{1}{4}$." Write $\frac{1}{4}$ on the chalkboard. Point to the top number and say, "One." Point to the line and say, "Out of." Point to the bottom number and say, "Four. This means one out of four or one-fourth."

Repeat this procedure with the other squares. Ask the students to color two parts green, three parts orange, and four parts red. When the students have finished, say, "Show us the square that has $\frac{3}{4}$, $\frac{1}{4}$, $\frac{4}{4}$ and $\frac{2}{4}$ colored. Point to the square that has green parts. How many parts are green? Who can tell us the name for that fraction (part)?" Continue to ask questions which will identify the fractional parts of the squares.

STRATEGY 2: Prepare and distribute a circle, drawing paper, four crayons and paste to each student. Demonstrate as you say, "Fold your circle into fourths. How many equal parts do you have? Color each fourth a different color. Paste your circle near the top of your drawing paper."

e.g.,



STRATEGY 2: cont'd

Ask the students to write the word red underneath the circle. Say, "How many parts of the circle are red? How many parts are there altogether? What fraction of the circle is red?" Write $\frac{1}{4}$ next to the word red. Continue with the other colors. Write different color combinations on the right hand side of the paper. (e.g., red and green, yellow and orange, red and yellow, green and yellow) Say, "Use your circle to help you write the fraction symbols for these color combinations. (e.g., red and green = $\frac{2}{4}$) What part of the circle does yellow and orange show?" Expand the list to include three and four color combinations.

1.06.02.03 **identify $\frac{1}{2}$ as equal to $\frac{2}{4}$ pictorially and record using the equal symbol (=)**

STRATEGY 1: Prepare and distribute two circles, two squares, crayons and a pair of scissors to each student. Say, "Place the squares in front of you. Put one square on top of the other. What can you tell us about them? (They are the same size.) Fold one square into halves and the other into fourths. (Demonstrate) Look at the square folded in half. How many equal parts does it have? Color one of the parts. Look at the square folded into fourths. How many equal parts does it have? Color two of the parts using different crayons. Carefully cut out the two fourths you colored. What is the fractional name for each part you cut out? How many fourths did you cut out? Place the two-fourths on the square you folded in half. Place them on the half you did not color. What do you notice?" Elicit that $\frac{2}{4}$ is the same as $\frac{1}{2}$ and write the fractional representation for $\frac{2}{4}$ and $\frac{1}{2}$ on the chalkboard. Say, "What symbol is used to show two

STRATEGY 1: cont'd things are equal to each other?" Write the = symbol, e.g., $\frac{2}{4} = \frac{1}{2}$. Draw a model of this concept on the chalkboard.

Repeat this procedure with the circles.

STRATEGY 2: Prepare and distribute a square, a circle and crayons to each student. Say, "Please take your square and fold it into halves. How many equal parts does it have? What is the name of each part?" Ask a student to write the symbol $\frac{1}{2}$ on the chalkboard. Say, "Color one of the two parts with your crayons. One half of the square has been colored. Refold your paper. Now we will fold the square again. (Demonstrate) Open your square. How many parts do you see now? How many parts are colored? Two of the four parts are colored. What is the fractional name for these parts?" Write $\frac{2}{4}$ on the chalkboard next to $\frac{1}{2}$. Elicit that the two fractional parts are equal and ask a student to place an equal symbol between the two fractions. Say, "One-half is equal to two-fourths." Repeat this procedure with the circle.

1.06.02.04 **solve story problems related to skills learned in this module**

STRATEGY 1: Prepare and display a picture of a cake and an orange cut into fourths. Say, "Ann, her brother, her mother and her father will eat this cake for dessert. Each person will eat one piece. Into how many pieces should Anne's mother cut the cake so that everyone gets the same size piece?" Ask a student to draw the cuts on the cake. Say, "What part of the cake will each person get?"

STRATEGY 1: cont'd

Provide an apple which has been cut into fourths. Say, "Into how many parts has the apple been cut? What is each piece called? If I eat one of the pieces, how many will be left? What is the fractional name for the piece I ate? What is the fractional name for each piece?"

Repeat this procedure with other story problems accompanied by either a picture or concrete materials.

STRATEGY 2:

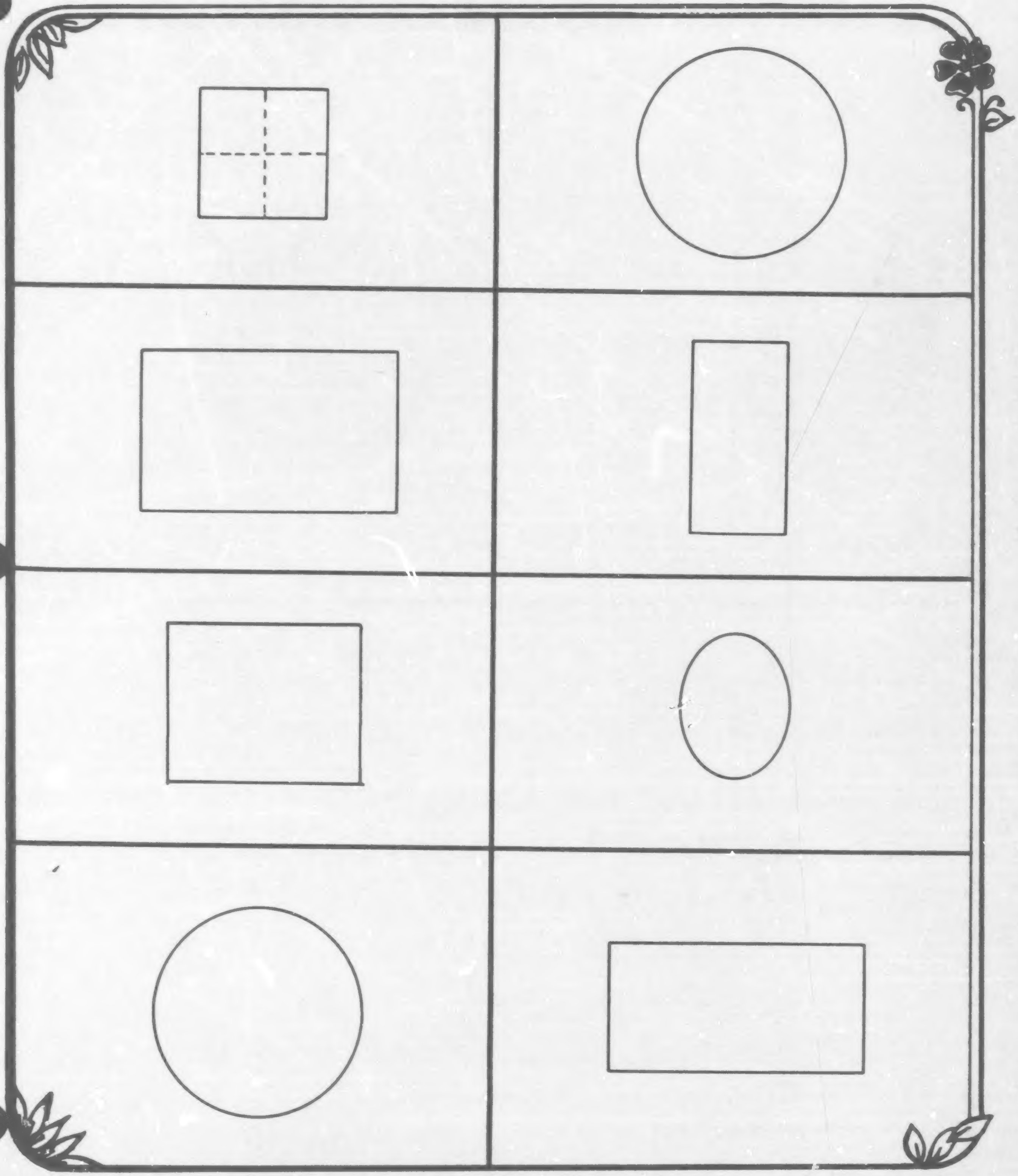
Prepare and distribute a paper showing geometric shapes that have been divided into fourths and a crayon to each student. Say, "Look at the first shape. What is it? How many equal parts does it have? Listen to my story, then use your crayon to color in the number of parts I am telling you about. Susan and Bob each ate one slice of pie. How many fourths did they eat? Shade in the number of fourths that show how much they ate."

Repeat this procedure by telling stories related to each drawing so that the students can shade in $\frac{1}{4}$, $\frac{3}{4}$ and $\frac{4}{4}$.

P.O. 1.06.02.01

NAME: ______________________ CLASS: __________ DATE: __________

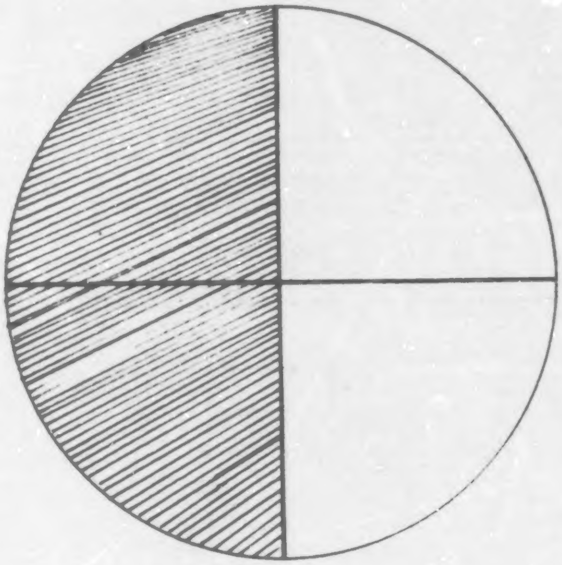
Separate each shape into fourths.



P.O. 1.06.02.02

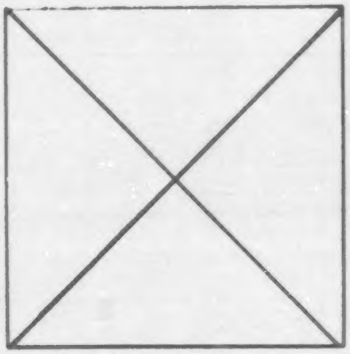
NAME: ______________________________ CLASS: ________ DATE: ______

Color in the number of parts named by each fraction.



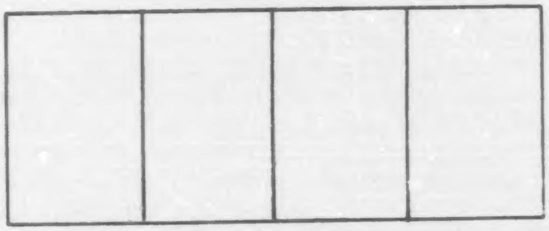
$\frac{2}{4}$

2 out of 4



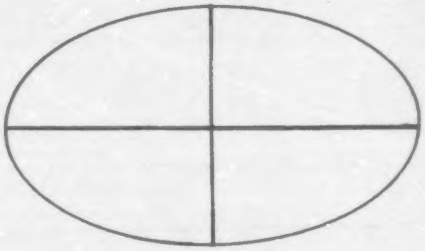
$\frac{4}{4}$

4 out of 4



$\frac{1}{4}$

1 out of 4



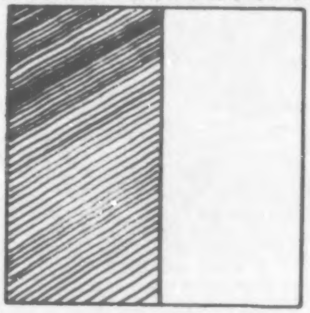
$\frac{3}{4}$

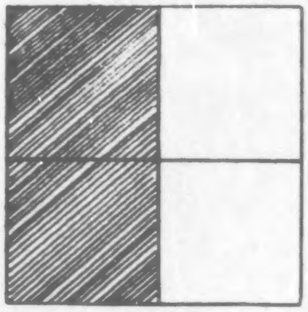
3 out of 4

P.O. 1.06.02.03

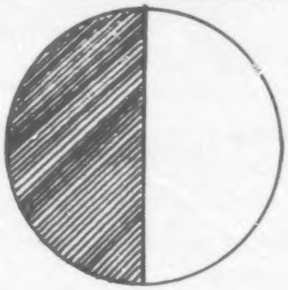
NAME:____________________ CLASS:__________ DATE:________

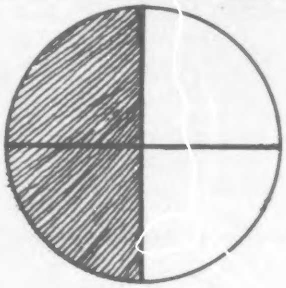
Name the fraction.
Write it in the space below each picture.



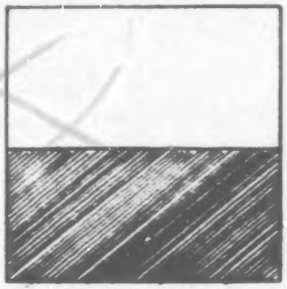


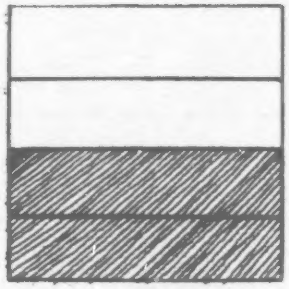
$\frac{1}{2} = \frac{2}{4}$





___ = ___





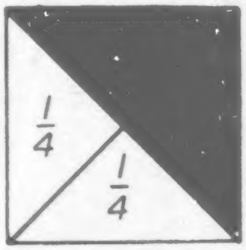
___ = ___

P.O. 1.06.02.04

NAME:______________________________ CLASS:__________ DATE:________

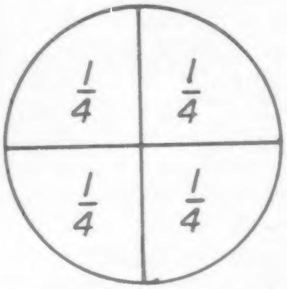
Shade in the parts to show how much the youngsters ate.

Two youngsters each had one part of a sandwich.



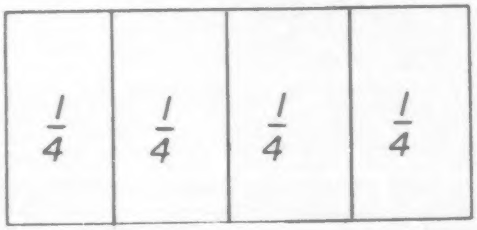
They ate $\frac{2}{4}$ of the sandwich.

Tim ate one slice of pie.



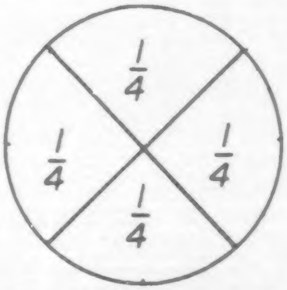
Tim ate ____ of the pie.

Four youngsters shared a granola bar equally.



They ate ____ of the granola bar.

Three youngsters each took one slice of cake.



They ate ____ of the cake.

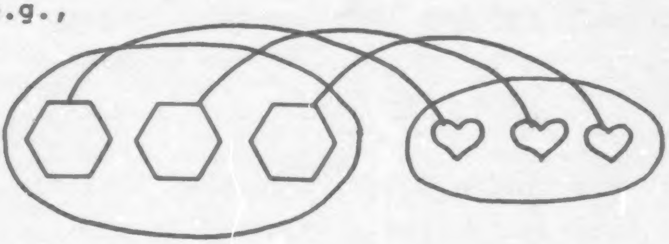
1.01.15 USE THE EQUAL SYMBOL (=) TO COMPARE GROUPS FROM 0 THROUGH 10 OBJECTS

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

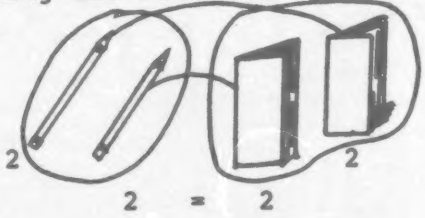
1.01.15.01A compare groups with 0 through 10 objects having the same number of objects; e.g.,



These groups have the same number of objects. We will call such groups equal groups.

1.01.15.02A compare equal groups with 0 through 10 objects using the relation symbol = (equal);

e.g.,
How many?



1.01.15.03A compare the numbers 0 through 10 using the equal relation symbol (=).
e.g.,

4 = 4, 7 ☐ 7, 9 ☐ 9

1.01.15

VOCABULARY

TERMS

equal
enough
not enough

GETTING STARTED

Prepare and display five rabbit cutouts, a flannelboard and other felt cutouts. e.g., carrots, mice and cheese. Say, "Each rabbit should get one carrot to eat." Ask a student to go to the cutout pile and give each rabbit a carrot. Say, "Does each rabbit have a carrot? Did you have enough?" Repeat this procedure. Vary the amounts so that there will not always be enough.

Ask the students to sit in a semi-circle. Prepare and display a selection of objects in the center of the semi-circle. e.g., pencils, crayons, cups, bottle caps and straws. Say, "Take a pencil. Does everyone have a pencil? Did we have enough pencils?" Repeat the procedure using the other objects.

1.01.15

1.01.15.01 **compare groups with 0 through 10 objects having the same number of objects**

STRATEGY 1: Prepare and display groups of objects in front of the classroom. (e.g., 6 empty milk containers; 6 straws; 2 buttons; 2 bottle caps; 8 red and 8 blue interlocking cubes.) Ask the students to come up to the desk and match the groups which have the same number of objects.

Repeat this procedure with groups of 0 through 10 objects.

STRATEGY 2: Prepare and display flannel cutouts, a flannelboard and yarn. Arrange 3 groups of cutouts on the flannelboard, e.g., chicks and eggs, spoons and forks, triangles and circles. Ask the students to put the yarn around the groups which have the same number of objects. After a student rings a group, ask him/her to line up the objects so that everyone can easily see the one-to-one correspondence.

Repeat this procedure with groups containing 0 to 10 objects.

1.01.15.02 **compare equal groups with 0 through 10 objects using the relation symbol = (equal)**

STRATEGY 1: Prepare and display assorted flannel cutouts, flannel numerals (0 through 10), an equal symbol and a flannelboard. Display a group of cutouts on the left half of the flannelboard, e.g., birds. Ask a student to pick another group of cutouts that will form an equal group with the birds,

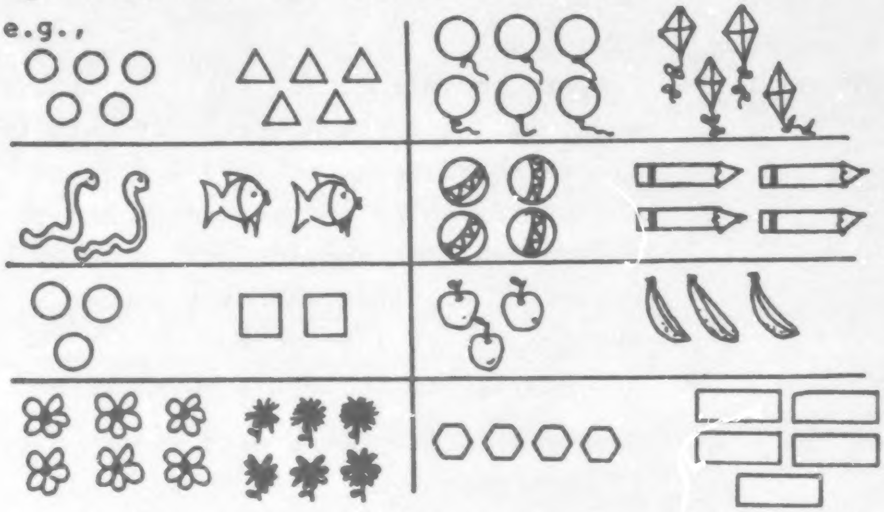
STRATEGY 1: cont'd

e.g., nests. Say, "Arrange the nests on the right half of the flannelboard." Place a felt numeral beneath each group. Place a felt equal symbol between the two numerals. Say, "This symbol is used to show that both groups contain the same number of objects."

Repeat this procedure changing the number of objects in each group.

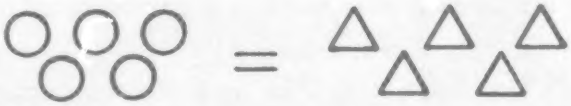
STRATEGY 2: Prepare and display a large chart showing groups of equivalent and non-equivalent groups.

e.g.,



Say, "Look at the first box. How many circles are in the group? (5) How many triangles are in the group? (5) Do both groups have the same number of objects? (yes) When both groups contain the same number of objects, they are equal." Draw the equal symbol between the two groups. Say, "This symbol shows us that both groups have the same number of objects."

e.g.,



If the groups do not have the same number of objects, do not draw any symbol between them.

Repeat this procedure to complete the chart.

1.01.15

1.01.15.03 **compare the numerals 0 through 10 using the equal relation symbol (=)**

STRATEGY 1: Write an equal symbol (=) on the chalkboard. Say, "Who can tell us what this is? Who can tell us another word for equal?" Elicit the concept that equal means the same. Write the following on the chalkboard: 3 =

Say, "If we have 3 on one side of the equal sign, what numeral should we have on the other side of the equal sign? Whatever you have on one side of the equal sign must be on the other side of the equal sign."

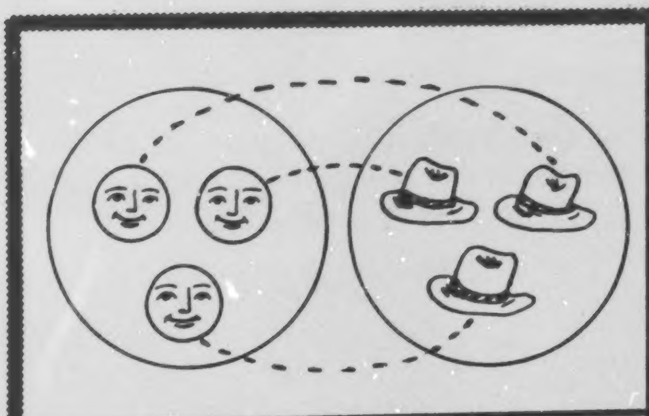
Repeat this procedure using the numerals 0 through 10.

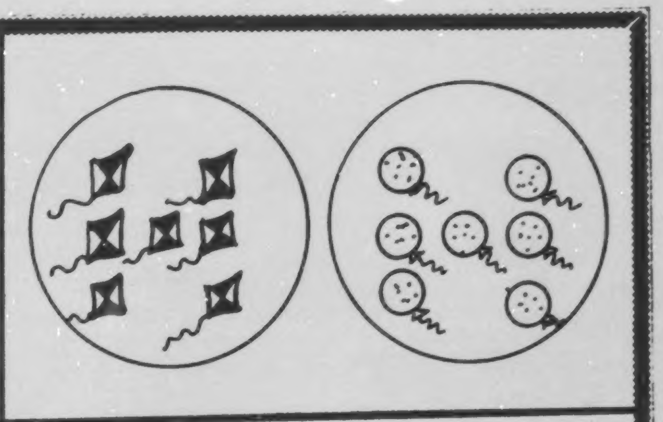
STRATEGY 2: Prepare and display groups of pictures containing 0 through 10 objects. Display a picture of four objects, e.g., birds. Place the picture on the chalkboard ledge. Present another picture of four different objects. Say, "How are these pictures alike?" Place the second picture on the chalkboard ledge and write the numeral 4 above both pictures. Present the equal (=) symbol to the students and say, "This is the equal (=) symbol." Place the equal sign between the numerals. Ask a student to read the number sentence, 4 = 4. Say, "There is a rule about the equal sign. Whatever you have on one side of the equal sign must be on the other side of the equal sign." Display a picture of six objects and an equal sign on the chalkboard. Say, "Who can tell us how many objects we must have on the other side of the equal sign? Why?" Repeat this procedure with the numerals 0 through 10.

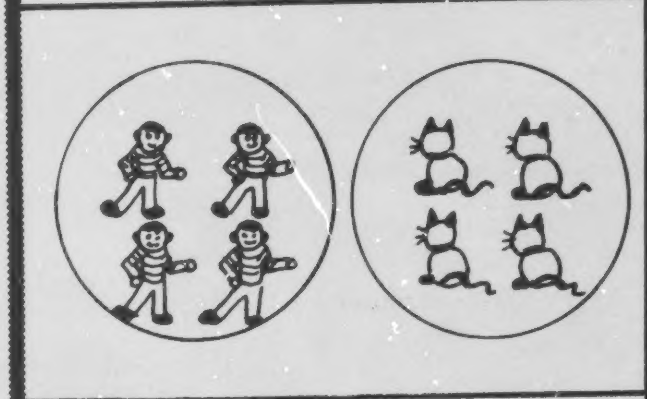
P.O. 1.01.15.01

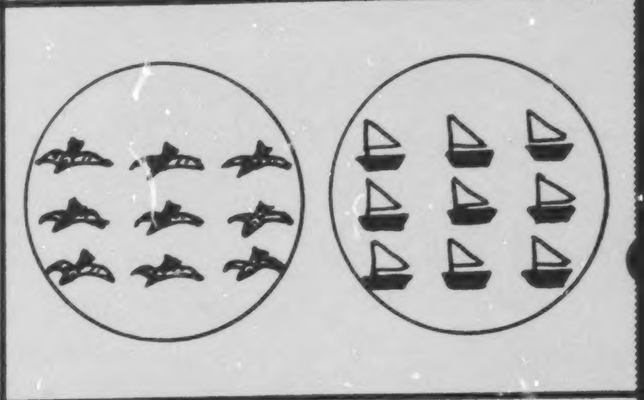
NAME:____________________ **CLASS:**________ **DATE:**________

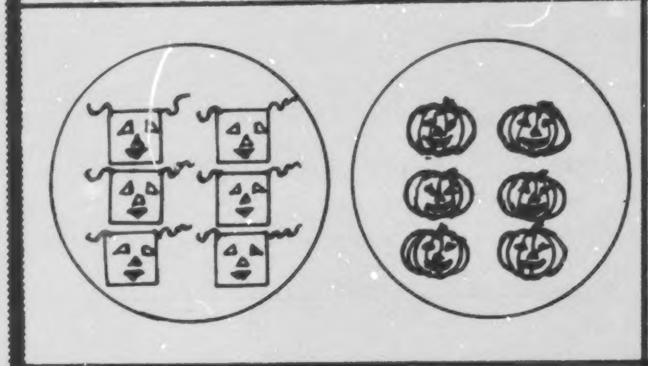
Match the objects using one-to-one correspondence.

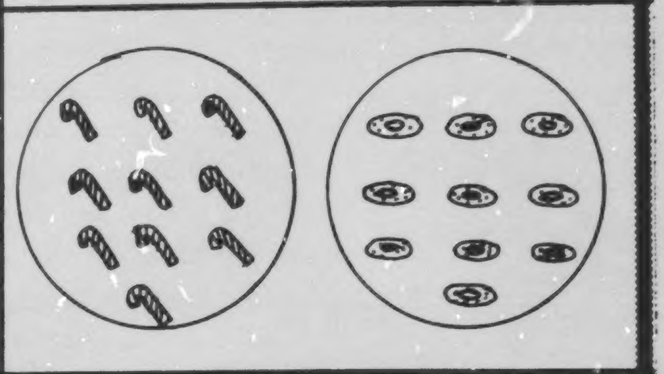


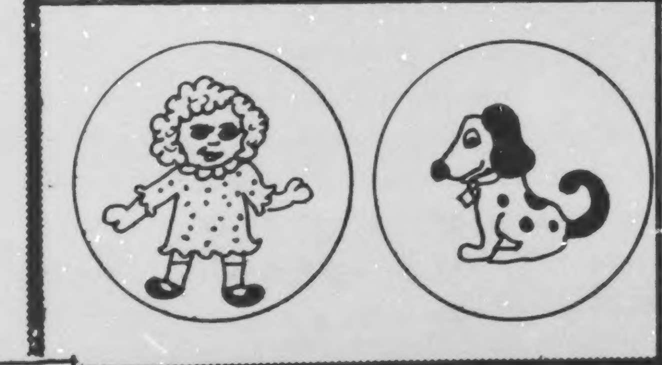


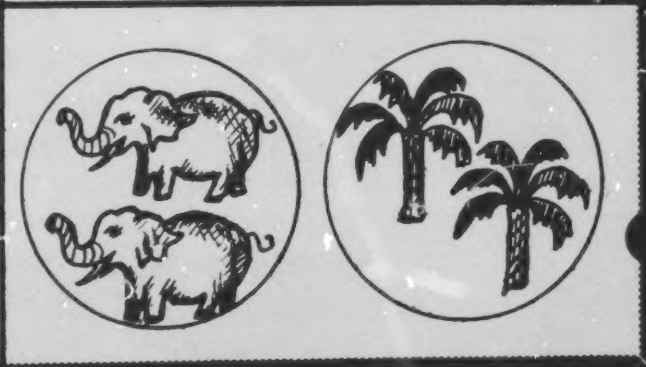








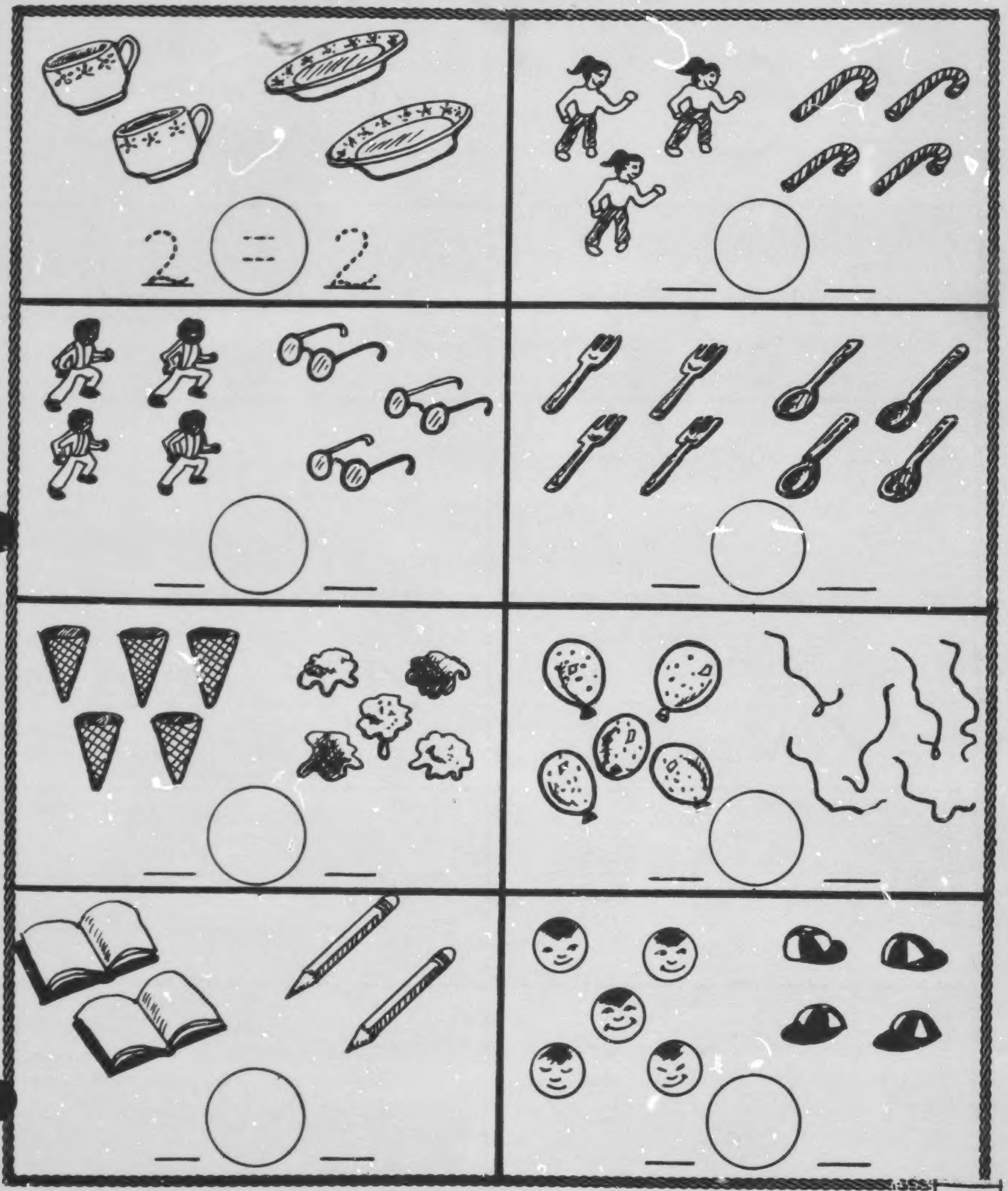




P.O. 1.01.15.02

NAME: ________________ CLASS: ________ DATE: ________

Count and match the objects.
Write the number of objects and write the equal symbol if the groups are equal.



P.O. 1.01.15.03

NAME: ______________________________ CLASS: ________ DATE: ________

Write an equal symbol (=) if the numbers are the same.

5 ⊜ 5	4 ○ 3
7 ○ 2	1 ○ 1
3 ○ 3	0 ○ 0
0 ○ 1	4 ○ 4
9 ○ 4	6 ○ 6
8 ○ 8	5 ○ 8

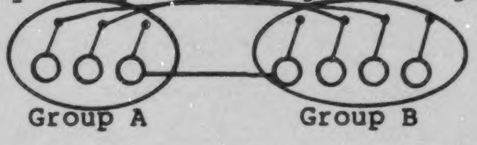
1.01.16 GREATER THAN (>) AND LESS THAN (<) SYMBOLS

(3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

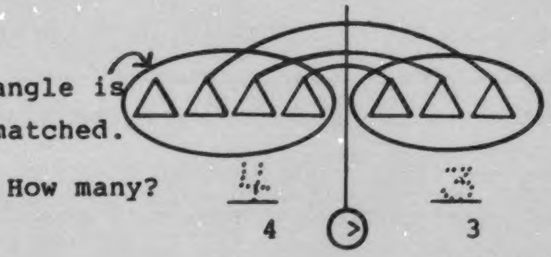
1.01.16.01A identify the group having more objects; e.g.,


Group A
Group B

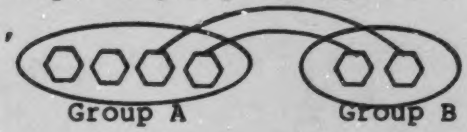
Group B has more objects than Group A.

1.01.16.02B use the greater than relation symbol (>) to compare numerals 0 through 10; e.g.,

One triangle is left unmatched.

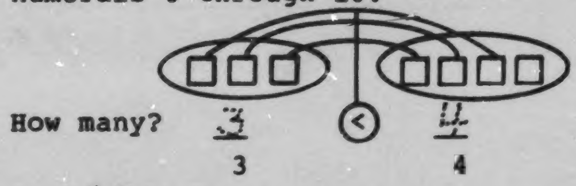

How many?
4
4
>
3
3

1.01.16.03A identify the group having fewer objects; e.g.,


Group A
Group B

Group B has fewer objects than Group A.

1.01.16.04B use the less than relation symbol (<) to compare numerals 0 through 10. e.g.,


How many?
3
3
<
4
4

1.01.16

VOCABULARY

TERMS	SYMBOLS
same	
equal	=
greater than	>
less than	<
more	
fewer	

GETTING STARTED

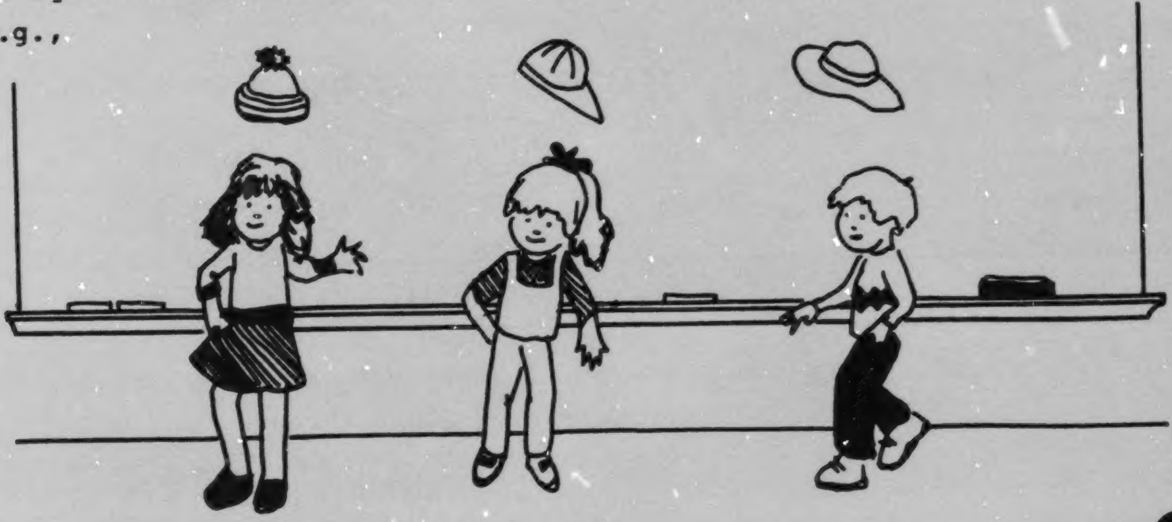
Prepare and display four empty milk containers. Place a straw next to each container. Say, "Are there as many containers as straws? There is a straw for each container and a container for each straw." Rearrange the containers and straws on the desk. Say, "Do we still have the same number of containers and straws? How do you know?"

Repeat this procedure with paper plates and napkins.

Draw a random number of hats on the chalkboard. Make sure they are well spaced. Say, "How many hats are drawn? How many students can stand below these hats?" Ask students to stand below the hats.

Repeat this procedure with stars, rings, crowns... each time having an equal number of students standing under the objects.

e.g.,



1.01.16

1.01.16.01 **identify the group having more objects**

STRATEGY 1: Prepare and display a flannelboard, flannel cutouts and yarn. Place three cutouts (e.g., stars) in a row. Then place four different cutouts (e.g., houses) below the stars. Ask students to match one star to one house. Say, "Do we have the same number of houses as stars? Which group has more?"

Repeat this procedure by varying the number of cutouts to be displayed.

STRATEGY 2: Prepare and display two paper bags and a group of objects. Face the chalkboard and place two objects in one bag and four objects in the other bag. Ask a student to come to the front of the room. Say, "Close your eyes. Place your hand in one bag and then in the other bag. Decide which bag has more objects." After he/she responds, take the objects out of the bags and count the number of objects in each bag. Allow all students to have an opportunity to choose the group having more.

Repeat this procedure varying the number of objects in the bag.

1.01.16.02 **use the greater than relation symbol (>) to compare numerals 0 through 10**

STRATEGY 1: Prepare and display flannel cutouts of groups of objects, cutout numerals (0 through 10) and a greater than (>) symbol. Display two groups of different objects (e.g., apples and pears) on a flannelboard. Place the group with more objects on the left half of the flannelboard and the lesser amount of objects on the right half. Ask a student to count the number of objects in the group on the

STRATEGY 1: cont'd

left. Say, "How many apples do you see?" (6) Place the cutout numeral 6 under the apples. Say, "How many pears do you see?" (4) Place the numeral 4 under the pears. Say, "What do the pictures on the flannelboard tell us? We have more apples than pears. Six is greater than four." Write 6 is greater than 4 on the chalkboard. Present the greater than symbol (>). Say, "This symbol means greater than." Place the symbol cutout between the 6 and the 4. Point to each numeral and symbol while saying, "Six is greater than four."

Repeat this procedure varying the number of objects. Ask the students to place the greater than symbol in the appropriate place.

STRATEGY 2: Prepare and display a flannelboard, flannel cutouts of various objects and a greater than (>) symbol card. Place two sets of different objects on the flannelboard. Say, "How many rabbits do you see? (6) How many carrots do you see? (3) Which group has more objects?" Point to each group and say, "Six objects are more than three objects. Six is greater than three." Write 6 is greater than 3 on the chalkboard. Using colored chalk draw a greater than symbol. Say, "We use the symbol greater than (>) to mean one number is greater than the other." Place the greater than symbol on the flannelboard between the 6 and the 3.

Continue this procedure varying the number of objects.

1.01.16

1.01.16.03 **identify the group having fewer objects**

STRATEGY 1: Prepare and display groups of books. Ask the students to count and arrange books of the same kind in stacks on several desks. On each desk place two stacks (one with more books and one with less books). Say, "Which stack has fewer books?"

Repeat this procedure with other objects.

STRATEGY 2: Prepare and display counters, placemats, discs, a magnetic board and numeral cards 0 through 10. Distribute counters and a placemat to each student. Display five discs on a magnetic board. Ask a student to choose the corresponding numeral card and place it next to the group. Ask another student to place a second group of discs and its corresponding numeral on the magnetic board. Say, "Which group has fewer? Come up and point to it." Remove the discs. Place eight discs on the magnetic board. Ask the students to do the same on their placemats. Say, "Now make a group with fewer than eight discs and place it below the eight discs." Ask the students how many discs they put on their placemat. Say, "Yes, your group of ___ has fewer than eight."

Repeat this procedure varying the numbers.

1.01.16.04 **use the less than relation symbol (<) to compare numerals 0 through 10**

STRATEGY 1: Prepare and display a flannelboard, a stack of numeral-dot cards (0 through 10) backed with felt and a less than (<) symbol. Place the card with two dots ( ) on the flannelboard, leave a space and display the card with seven dots ( ). Say,

STRATEGY 1: cont'd

"Which card shows a lesser amount of dots? Who can tell us that in a sentence?" Elicit the sentence, "2 is less than 7." Present the less than symbol (<). Say, "This symbol (<) says less than." Place the symbol between the 2 and the 7 and ask a student to read the sentence.

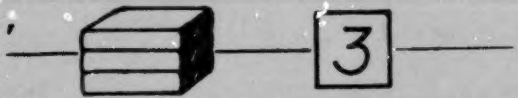
Place another numeral card ($\boxed{4}$) and a symbol card (<) on the flannelboard (< $\boxed{4}$). Ask a student to read the number sentence. Ask another student to find a numeral card which is less than 4.

Randomly place two different numeral cards on the flannelboard. Place the less than (<) symbol in the center of the flannelboard. Ask a student to compare the cards and make a number sentence showing less than (<).

Repeat this procedure varying the numbers from 0 through 10.

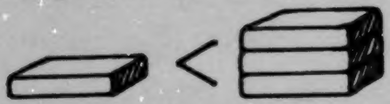
STRATEGY 2: Prepare and display numeral cards (0 through 10) on the chalkboard ledge. Provide a stack of wood blocks. Ask a student to find the numeral card 3 and place three blocks on an empty desk.

e.g.,



Display the symbol card < . Say, "This symbol means less than and the point goes toward the smaller number." Ask another student to select a numeral which is less than 3, e.g., 1. Ask a student to count out the blocks that represent this number and place them on the desk.

e.g.,



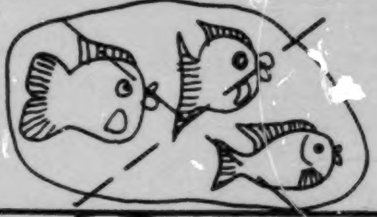
Repeat this procedure.

201

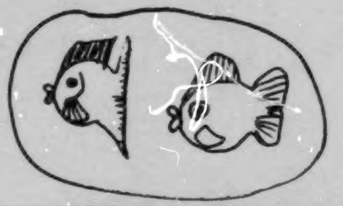
P.O. 1.01.16.01

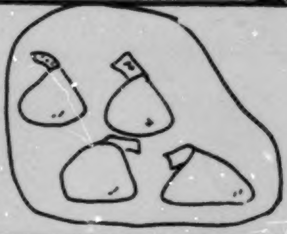
NAME: ____________________ **CLASS:** __________ **DATE:** ________

Put an X on the group that shows more.



or





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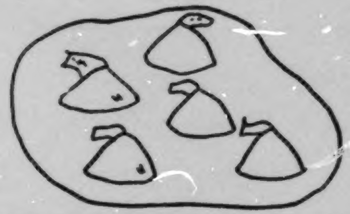

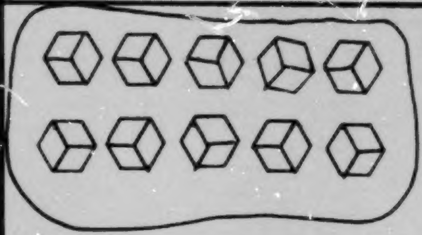

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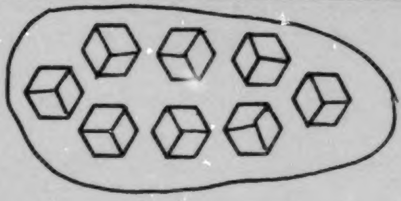
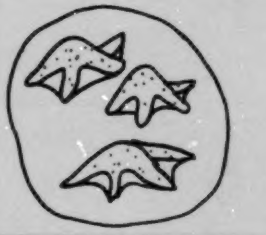
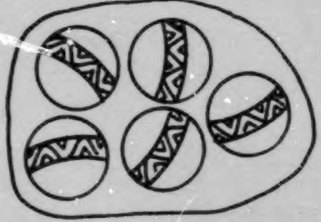
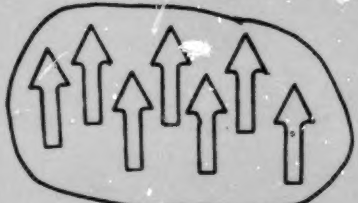


Draw more





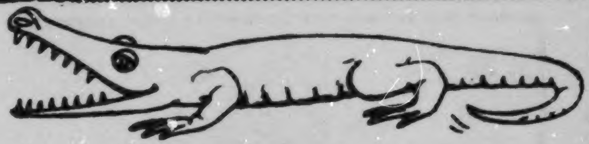


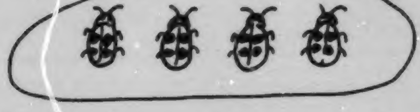
P.O. 1.01.16.02

NAME:______________________________ CLASS:________ DATE:___ ___

Count the objects in each group. Write the number of objects you count under each group. Fill in the greater than symbol. Complete the picture for the last group.

Greater Than





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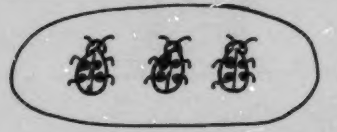
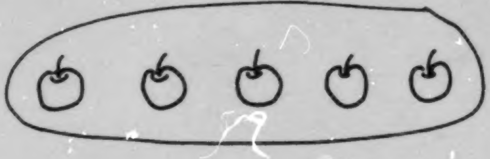


3

4 > 3



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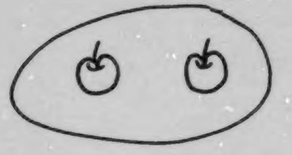

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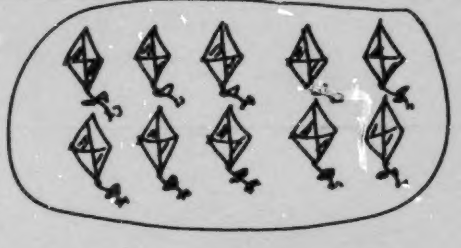

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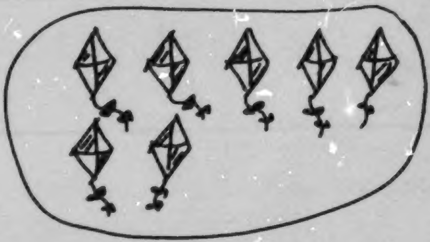

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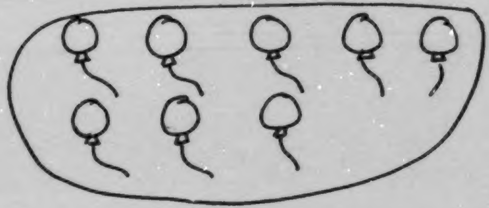


____

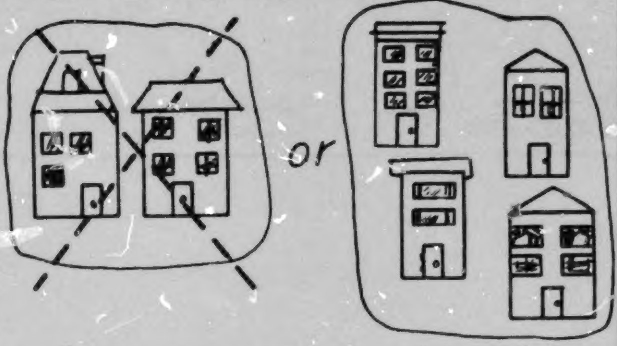
you make 🎈's.

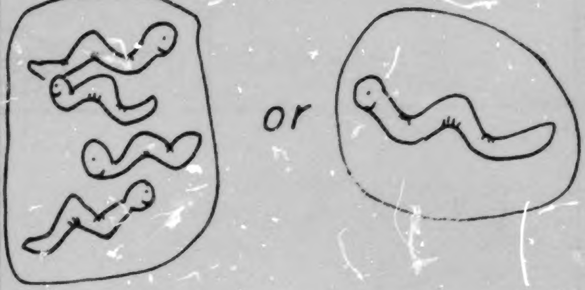
____

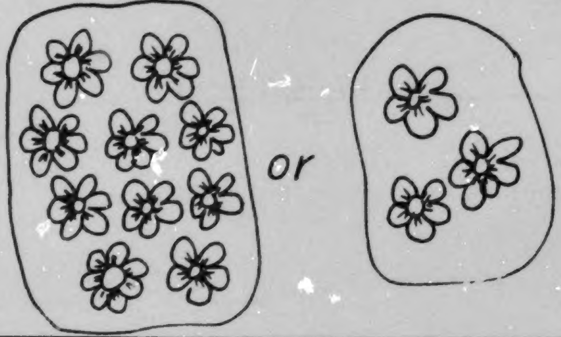
P.O. 1.01.16.03

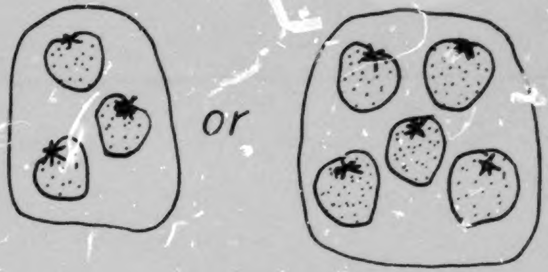
NAME: ____________________ CLASS: ________ DATE: ________

Which is less? Put an X on the group with less.

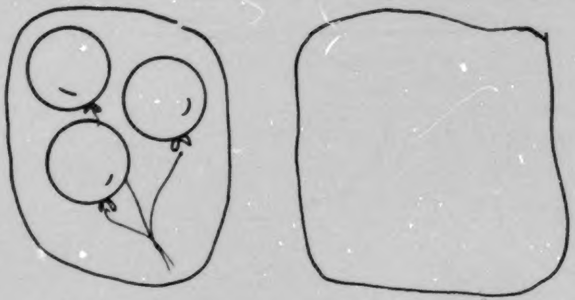


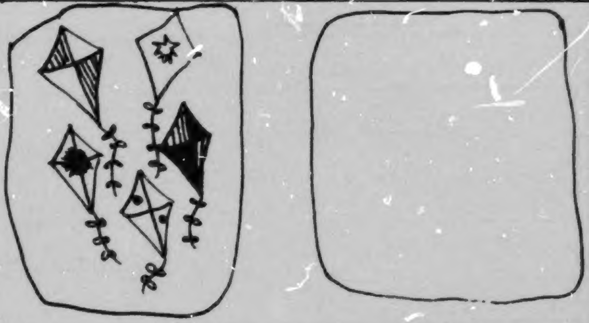


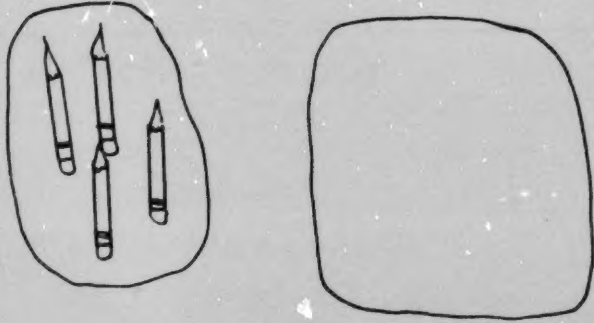


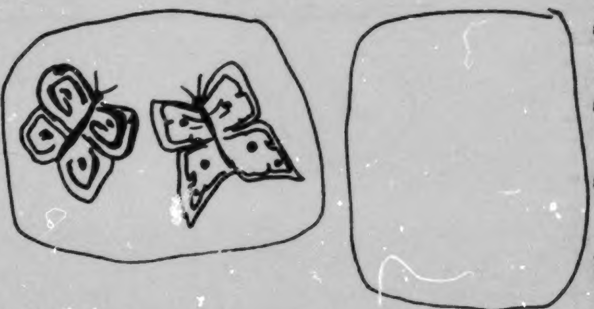


Draw fewer objects in the empty space.









P.O. 1.01.16.04

NAME: ______________________ CLASS: ______ DATE: ______

Which group has less objects?
Write the symbol (<) less than.

Less Than

○○○○○ (<) ○○○○○○

5 ______ 6 ______

♡♡♡ ( ) ♡♡♡♡♡♡♡

______ ______

( )

______ ______

You make the X's.

X ( ) ( )

______ ______

Unit 57

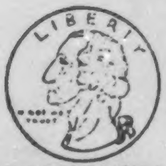
1.10.16 QUARTERS, HALF DOLLARS, DOLLARS

(2 lessons)

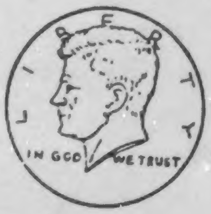
PERFORMANCE OBJECTIVES

The student will be able to...

1.10.16.01B recognize and identify a quarter, half dollar and dollar bill;
e.g.,



= a quarter


LIBERTY
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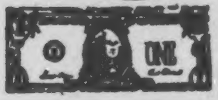
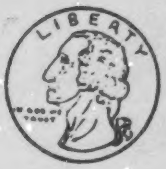
= a half dollar



= one dollar

1.10.16.02B identify equivalent values of a quarter using dimes, nickels, and pennies;



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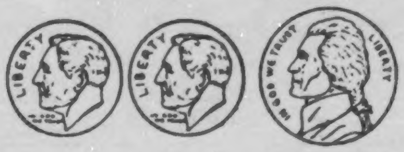
LIBERTY
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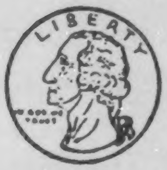
IN GOD WE TRUST
LIBERTY



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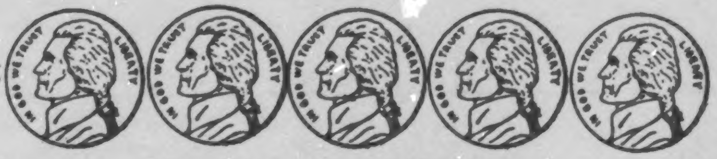
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1.10.16.03B read money notation through $9.99 using the dollar sign and decimal point.
e.g.,
$1.65 = one dollar and sixty-five cents.

1.10.16

VOCABULARY

TERMS	**SYMBOLS**
quarter	25¢ or $.25
half dollar	50¢ or $.50
dollar bill	$1.00
dollar sign	$
decimal point	.

GETTING STARTED

Prepare and distribute a penny, nickel and dime facsmile to each student. Say, "We will play 'What Am I?' I will describe one of the coins you have on your desk. Hold up the coin I am describing to you." e.g., I am brown what am I? I am silver and smaller than a penny. What am I? I am silver and worth five cents. What am I? I have the words "one cent" written on me. What am I? I am worth ten cents. What am I?...

Prepare and display ten pennies, two nickels and one dime.

Make a chart to develop equivalent values of coins.

e.g.,

VALUE	COINS
5¢	1 nickel or 5 pennies
10¢	1 dime, 2 nickels, 10 pennies, 1 nickel + 5 pennies

Divide the students into two teams. Say, "Let's play 'How Much?' I will name a coin, e.g., a dime. The first student on Team A must pick out the coin I named and tell us how much money it is worth. If the answer is correct, Team A will score one point. Then I will name a coin for Team B." Repeat the procedure until all students have had a chance. The team with the most points at the end of the game is the winner.

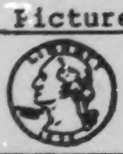
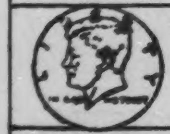
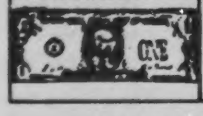
1.10.16

1.10.16.01 **recognize and identify a quarter, half dollar and dollar bill**

STRATEGY 1: Prepare and distribute play money - penny, nickel, dime, quarter, half dollar and dollar bill [illegible] each student. Say, "Look at the coin I am holding. What color is this coin? It is called a quarter. About how large is the quarter? Compare it to the penny. Is it larger? Is it smaller? Compare it to the dime. Is it larger or smaller. A quarter is worth twenty-five cents." Continue this procedure for the half dollar and dollar bill. As you ask the questions record the answers on a chart.

e.g.,

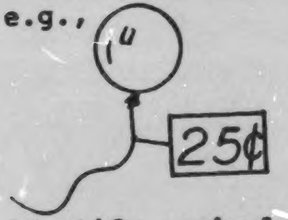
Money

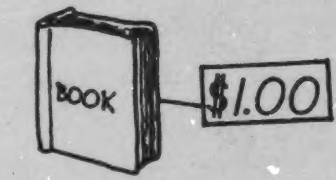
Picture	Money Name	Description
	quarter	silver color, larger than penny, nickel, dime
	half dollar	silver color, larger than penny, nickel, dime, quarter
	dollar bill	paper, shape of a rectangle green, has the numeral 1 in each corner

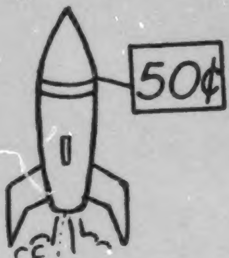
STRATEGY 2: Prepare and distribute a quarter, half dollar and dollar bill facsimile to each student. Display a quarter or a picture of a quarter. Say, "Hold up the same coin I am holding. What do you see on it?" Direct the students' attention to the tail side of the coin. Point out the words at the bottom. Say, "This tells us the name of this coin. This coin is called a quarter. A quarter has the value of twenty-five cents." Continue this procedure for the coin recognition of the half

STRATEGY 2: cont'd dollar. Say, "Hold up this coin. It is larger than the quarter. What do you see on it? Look at the words at the bottom of the tail side. They say one half dollar. A half dollar has the value of fifty cents. It is larger than a quarter and worth more than a quarter." Display the dollar bill. Ask, "How is this different from the money we have learned about? e.g., it is made of paper, it is green, it is rectangular, it can be folded... Look at each of the four corners on the front and the back. What numeral do you see?" Point out the words 'one dollar'. Say, "These words tell us the name of this bill. It is called a dollar bill. The number tells us how many dollars it is worth. This bill is worth one dollar." Display pictures of objects to buy with price tags of 25¢, 50¢ and $1.00. Point to one of the objects. Say, "This balloon costs twenty-five cents. Which coin do you need to buy the balloon?" Proceed with an object for fifty cents and one dollar.

e.g.,







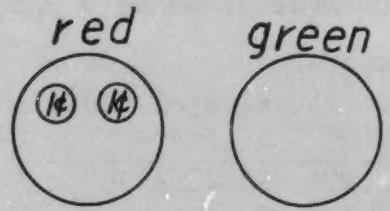
1.10.16.02 identify equivalent values of a quarter using dimes, nickels, and pennies

STRATEGY 1: Prepare and distribute play money - ten pennies, two dimes, five nickels, a quarter and a paper plate to each student. Say, "Pretend the plate is a bank in which to place your money. Stack your coins on the plate." (Demonstrate.) Distribute one green and one red circle (20cm diameter) to each student. Say, "Place the circles on your desk in the same positions as the figures

STRAETGY 1: cont'd

on the chalkboard. Place two pennies in the red circle.

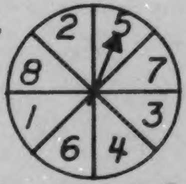
e.g.,



Place three more pennies in the red circle. How much money do we have in the red circle? Who can place the same amount of money (5¢) in the green circle using only one coin? Which money would you use to buy a 5¢ balloon?" Reinforce the equivalence (value) of the money in each circle. Say, "Clear your circles. Place all your money back into the bank. Place two nickels in the red circle. How much money is this worth? Can you place one coin that is worth the same amount of money in the green circle? Can you show ten cents in the red circle in another way?" Repeat this procedure reviewing the equivalent values through the quarter (25¢).

STRATEGY 2: Prepare and distribute pennies, nickels, dimes and spinners with the numerals 1 through 8.

e.g.,



Divide the students into groups of five. Ask one student to act as the banker. Each student in turn spins a spinner and must get enough pennies to correspond to the number shown on the spinner. Pennies are traded in to form equivalents of other coins, e.g., five pennies are traded in for one nickel, two nickels for one dime... The first student to get a quarter wins the game.

1.10.16

1.10.16.03 **read money notation through $9.99 using the dollar sign and decimal point**

STRATEGY 1: Prepare a money place value pocket chart and three cards of the numerals from zero through nine.

e.g.,

Dollars	Cents
$ 4 .	3 4
___ .	___ ___
___ .	___ ___

Place $4.34 in the pocket place value chart. Say, "How much money do we have?" Ask a student to count the money in the chart. Point to the decimal point. Say, "This dot is called a decimal point. It separates dollars from cents. We always read the dollars first and then the cents. The dollar sign comes before the dollars numeral. How many dollars are in this amount? How many cents? How do we read this amount?" (Four dollars and thirty-four cents.) Ask a student to reread the amount while pointing to the dollar sign, dollar digit, the decimal point and the cents digits. Repeat this procedure with other amounts of money.

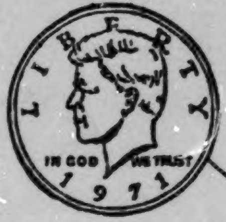
STRATEGY 2: Use the money place value pocket chart and number cards used in Strategy 1. Point to the word "dollars". Say, "The numerals on this side tell us how many dollars there are." Point to the word "cents". Say, "The numerals on this side tell us how many cents there are." Place $8.22 in the pocket place value chart. Say, "How many dollars? How many cents?" Write $8.22 on the chalkboard. Say, "We read this amount as 8 dollars and 22 cents. We always write a dollar sign in front of the amount. A decimal point always separates the dollars from the cents."

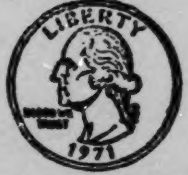
Repeat this procedure with other amounts of money. Ask students to place the amount on the place value chart.

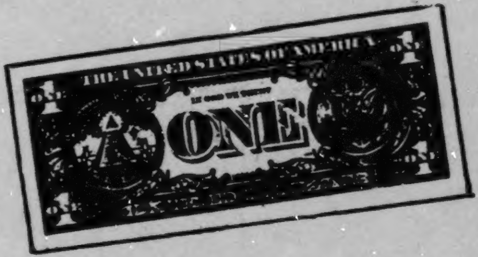
P.O. 1.10.16.01

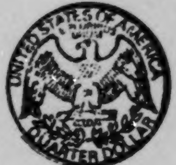
NAME: ______________________ CLASS: ________ DATE: ________

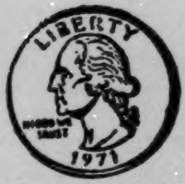
Match the front to the back of the money.

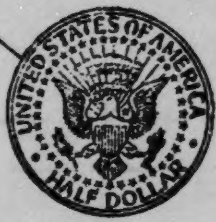

LIBERTY
IN GOD WE TRUST
1971

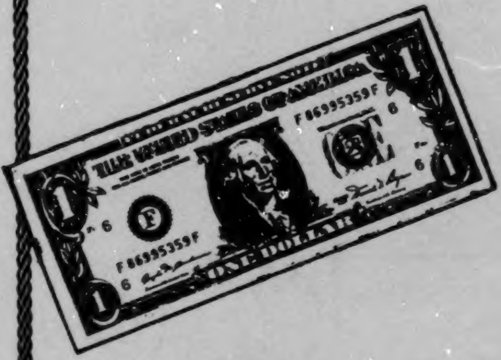

LIBERTY
IN GOD WE TRUST
1971

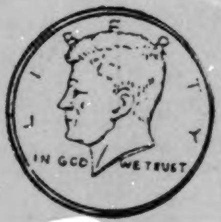

THE UNITED STATES OF AMERICA
IN GOD WE TRUST
ONE

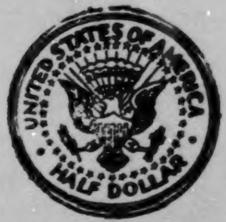

UNITED STATES OF AMERICA
QUARTER DOLLAR

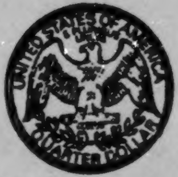

LIBERTY
IN GOD WE TRUST
1971


UNITED STATES OF AMERICA
HALF DOLLAR


THE UNITED STATES OF AMERICA
F86995359F
F
ONE DOLLAR
1


LIBERTY
IN GOD WE TRUST

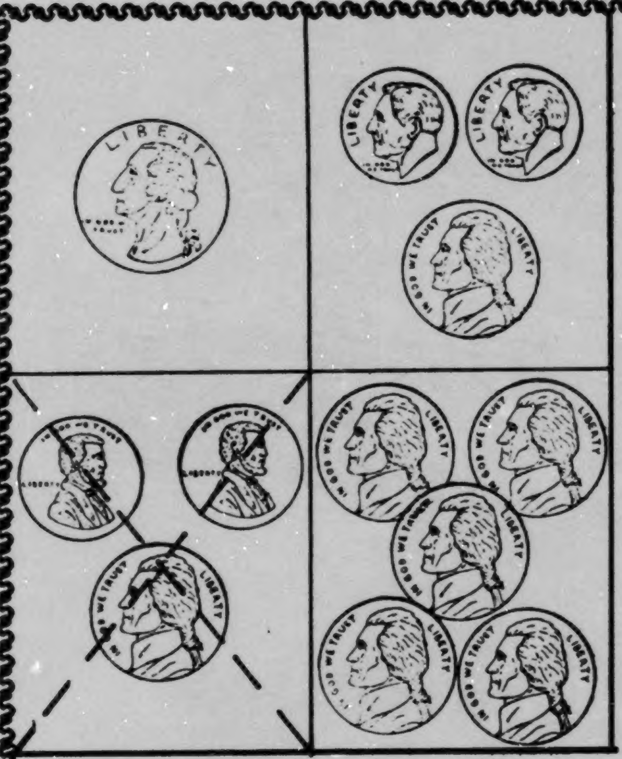

UNITED STATES OF AMERICA
HALF DOLLAR

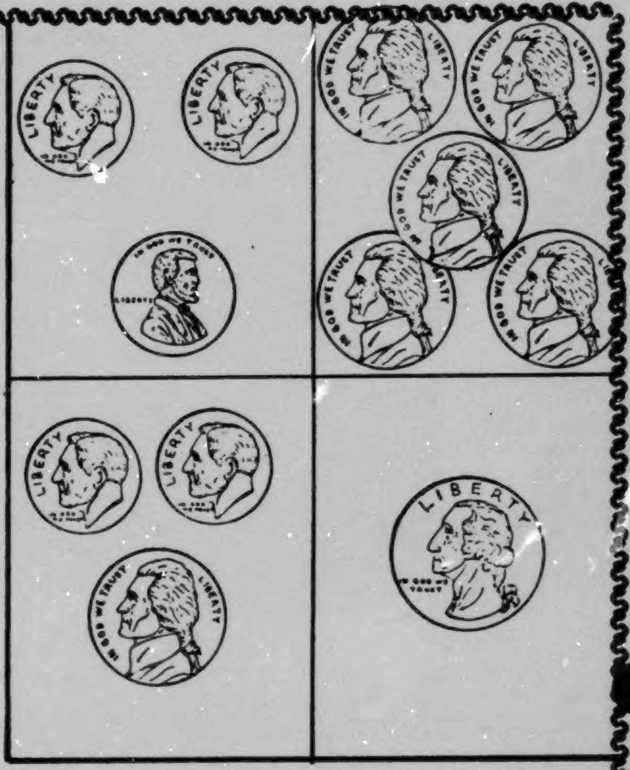

UNITED STATES OF AMERICA
QUARTER DOLLAR

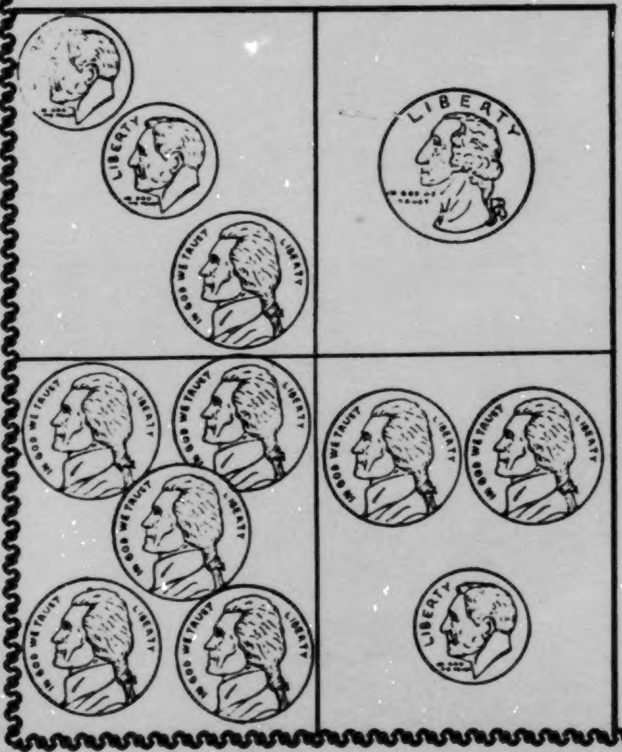
P.O. 1.10.16.02

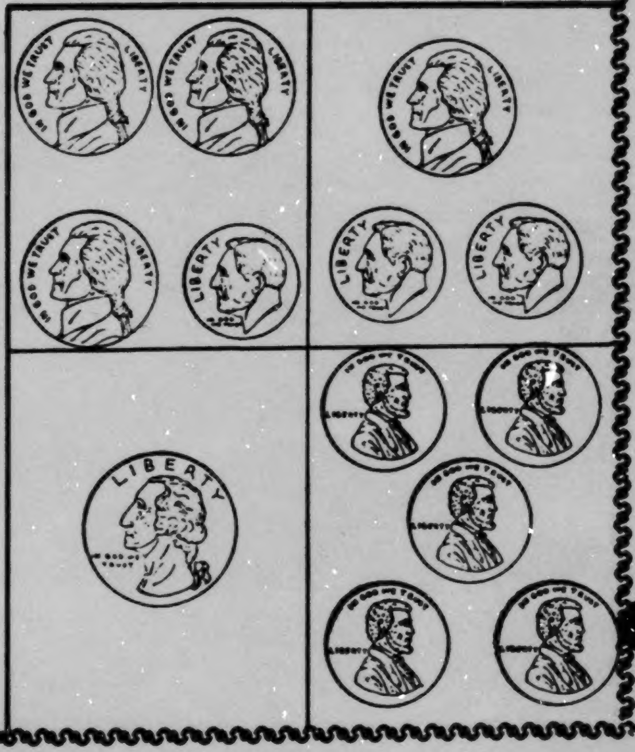
NAME: ____________________ CLASS: ________ DATE: ________

Draw an X on the box that is different in value.





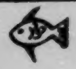
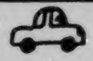




P.O. 1.10.16.03

NAME:______________________ CLASS:__________ DATE:________

Circle the correct amount of money.

7 dollars and 58 cents		[✓ $7.58]	$5.78	$8.75
 2 dollars and 19 cents		$1.29	$2.19	$9.21
6 dollars and 5 cents		$5.60	$6.50	$6.05
1 dollar and 72 cents		$1.72	$2.71	$7.12
 2 dollars and 98 cents		$8.92	$2.98	$9.28
4 dollars and 21 cents		$1.24	$4.21	$2.14

1.06.03 THIRDS

(2 lessons)

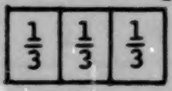
PERFORMANCE OBJECTIVES

The student will be able to...

1.06.03.01B separate representative objects into thirds;

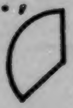
e.g.,

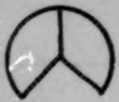
Bar of Soap

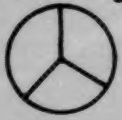


1.06.03.02B identify, write and record fractional notation for one-third as $\frac{1}{3}$, for two-thirds as $\frac{2}{3}$, for three-thirds as $\frac{3}{3}$;

e.g.,

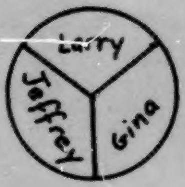

$= \frac{1}{3}$


$= \frac{2}{3}$


$= \frac{3}{3}$

1.06.03.03B solve story problems related to skills learned in this module.

e.g.,



Larry, Gina and Jeffrey want to share 1 pizza equally. Into how many pieces should the pizza be cut?

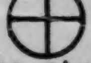
1.06.03

VOCABULARY

TERMS	SYMBOLS
one-third	$\frac{1}{3}$
two-thirds	$\frac{2}{3}$
three-thirds	$\frac{3}{3}$
equal	=

GETTING STARTED

Display pictures of geometric shapes which have been divided into halves or fourths.

e.g., 

Ask the students to identify the number of equal parts for each shape.

Variation: Draw geometric shapes which have been divided into equal and unequal parts. Label two columns on the chalkboard, EQUAL and NOT EQUAL. Have the students choose a picture and tape it in the appropriate column and tell why it was placed in that column.

Prepare and display two sheets of paper of equal size. Fold one of the papers in half and cut along the fold. Say, "What did I do with the paper? How many parts do I have? Are they the same size? How can we show they are the same size?" Ask several students to place the two parts one on top of the other to show that they are the same size. Say, "What do we call each part?" Take one half of the paper and compare it to the other sheet of paper. Say, "How much of the paper does this part cover?" ($\frac{1}{2}$) Remove the half and place it on the other side of the full sheet. Say, "How much of the paper does the part cover now?" ($\frac{1}{2}$) Hold up both halves and cover the full sheet of paper. Say, "How much am I covering now?" ($\frac{2}{2}$)

1.06.03

1.06.03.01 **separate representative objects into thirds**

STRATEGY 1: Prepare and distribute scissors, crayons and two circles, one of which has dotted lines to show thirds, to each student. Say, "Compare the two circles. Are they the same? How can you tell?" Ask the students to use the crayon to color the circle with the dotted lines. Say, "Carefully cut that circle along the dotted lines. How many parts do you have? (3) Are they equal to one another? How do you know?" Pick up one of the parts and ask, "How many parts make up the whole circle? How many parts am I holding?" Write the following on the chalkboard:

___ part out of
pieces

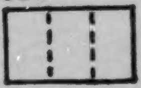
Say, "How many parts?" Write numeral 1 next to part. Say, "How many pieces in all?" Write 3 next to 'pieces'.

e.g.,

$\frac{1}{3}$ part out of
pieces

Point to the 1 (one part out of), point to the 3 (3 pieces). Say, "This part is one third of the circle." Hold up a different part. Say, "This is one part of the three pieces. It is also one third of the circle." Do the same with the third part. Say, "Pick up one of the thirds and put it on your other circle. Do the same with the two other thirds. What do you see about the three parts when they are placed on the circle?" Guide the students to see that the three parts make the whole circle.

STRATEGY 2: Prepare and distribute scissors, crayons (red, blue, green), and a rexograph sheet with dotted lines drawn on it to represent thirds, e.g.,



Say, "Put your finger on the first space. (Demonstrate) Color this space red. Put your

STRATEGY 2:
cont'd

finger on the next space. Color it blue. Put your finger on the last sapce. Color it green. Now, carefully cut the paper along each dotted line. How many pieces do you have now?" (3) Ask students to put the red piece on top of the blue piece. Say, "Are both pieces the same size? How do you know?" Ask the students to place all three pieces in a pile. Say, "Are all three pieces the same size? How do you know? When we separate something into three equal parts, we say that we have separated the whole into thirds.

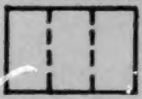
Ask students to hold up the red piece. Say, "Since this piece is one of the thirds, we call it one-third. The blue piece is also called one-third. Can you guess what the green piece will be called? How many of these thirds do we need to put the whole paper back together again?" Demonstrate.

1.06.03.02 **identify, write and record fractional notation for one-third as $\frac{1}{3}$, two-thirds as $\frac{2}{3}$, three-thirds as $\frac{3}{3}$**

STRATEGY 1:

Prepare and distribute crayons and a rexographed sheet of a rectangle which has dotted lines to show thirds.

e.g.,



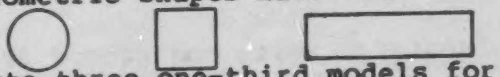
Ask the students to identify the shape and the number of parts it has. Say, "How many parts are there to the rectangle?" Write 3 on the chalkboard. Say, "Color the first part of the rectangle orange. How many of the parts are orange?" Write '1' above the 3 on the chalkboard. Draw a horizontal line between the 1 and 3 ($\frac{1}{3}$). Say, "This tells us, (point to the 1) one part of the rectangle is orange and this tells us, (point to the 3) that there are three equal parts

STRATEGY 1: cont'd

altogether. The orange part is one third of the entire rectangle." Continue this procedure with the other two thirds. On the chalkboard, write orange and yellow. Have the students copy this on their papers. Say, "How much of the rectangle is orange? How much of the rectangle is yellow? How many parts of the rectangle are there? Together they make up two of the three parts. They make two thirds of the rectangle." Write the symbol $\frac{2}{3}$ and 2 out of 3 parts next to the orange and yellow. Direct the students to do the same on their papers, e.g., orange and yellow $\frac{2}{3}$ or 2 out of 3 parts. Continue with other combinations of color to show $\frac{2}{3}$ and extend to combinations of all three colors to show $\frac{3}{3}$ or 3 out of 3.

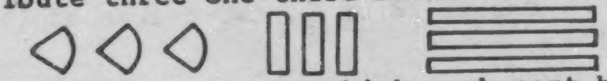
STRATEGY 2: Prepare and distribute paste and a sheet on which three geometric shapes have been drawn.

e.g.,



Distribute three one-third models for each shape.

e.g.,



Say, "Find the shape on which each part belongs. Which parts fit on the circle? How do you know? Place them on the circle so they form a whole circle. How many of these parts do you have? (3) Paste two of them next to each other on the circle. How many parts have you pasted? (2) How many parts do you need to cover the whole circle? (3) We pasted one-third on the circle. Then we pasted another one-third on the circle. Two out of the three parts are pasted on the circle so we say that two-thirds of the parts are pasted on the circle.

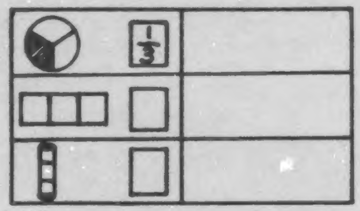
Label the fractional part of the circle which is pasted on the circle. Continue with the other two shapes, pasting one-third on the rectangle and three-thirds on the square.

1.06.03

1.06.03.03 **solve story problems related to skills learned in this module**

STRATEGY 1: Prepare and distribute crayons and a rexograph sheet on which pictures relating to story problems have been drawn. Each picture should be divided into thirds. A space should also be provided for the students to write the answer to the problem.

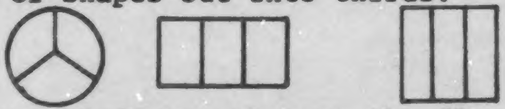
e.g.,



Say, "Find the box with the cake drawn in it. Listen to my story and color the part of the picture I'm talking about. Carmen ate one-third of the cake. Color the part of the cake that Carmen ate. How many parts did you color? (1 out of 3) What part does that name?" (one-third) Ask the students to write $\frac{1}{3}$ in the box next to the cake. Repeat with similar problems using $\frac{1}{3}$, $\frac{2}{3}$ and $\frac{3}{3}$, relating to problems drawn on the rexograph sheet.

STRATEGY 2: Prepare and display a flannelboard with fractional parts of shapes cut into thirds.

e.g.,



Put the thirds together at the flannelboard to form a rectangle. Say, "Let's pretend that this rectangle is a great big chocolate bar. Into how many equal pieces has it been divided?" Ask the students to listen to your story. Say, "I want to share my chocolate bar with my friends. Tony will get one-third, Martha will get one-third and I will get one-third."

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STRATEGY 2: cont'd

Ask a student to come to the flannelboard and act out the story. Repeat this procedure, varying the pictures and the fractional parts that are named. e.g., $\frac{2}{3}$, $\frac{3}{3}$

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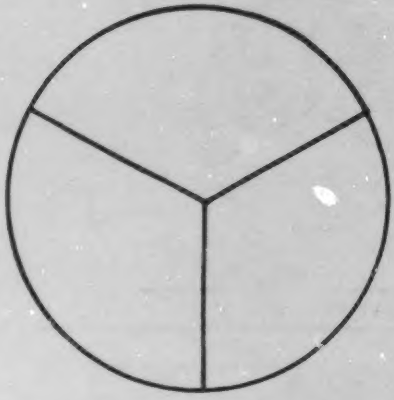
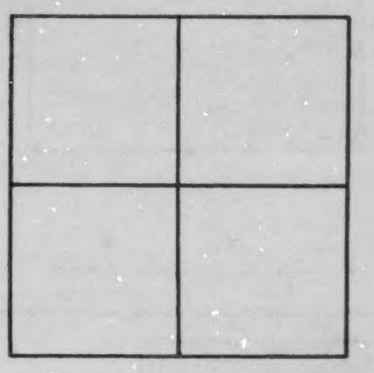
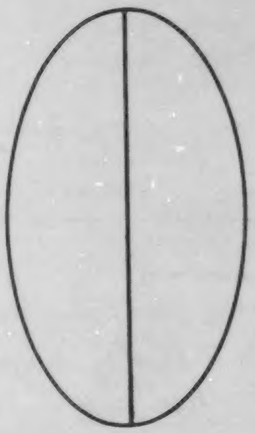
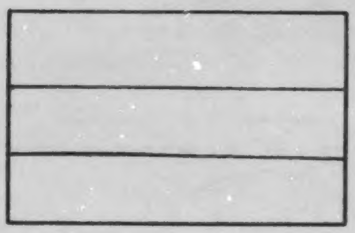
NAME: ______________________ CLASS: ________ DATE: _______

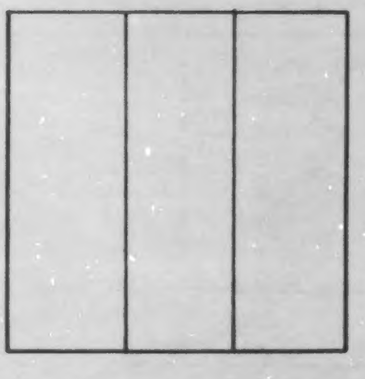
Draw an X on the shapes which show thirds.

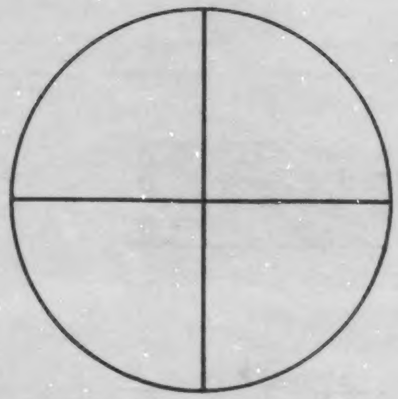








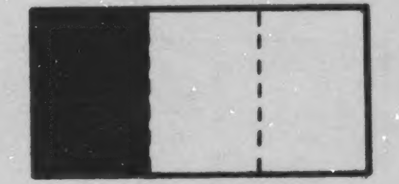




P.O. 1.06.03.02

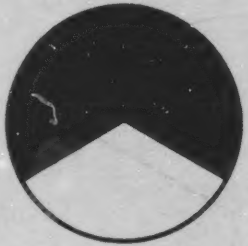
NAME: ____________________ CLASS: ________ DATE: ________

Write the fraction for the shaded part.



$\frac{1}{3}$

1 of 3



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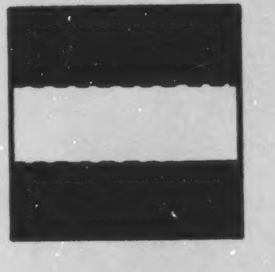

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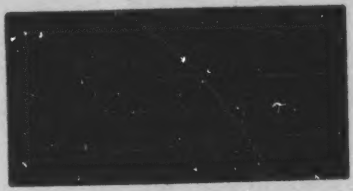

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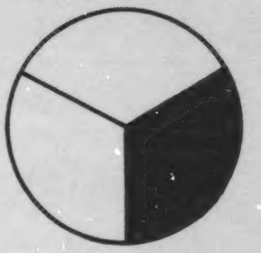

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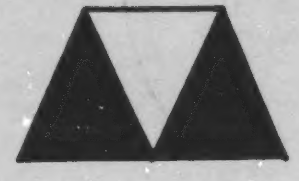

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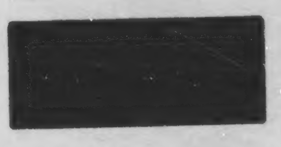

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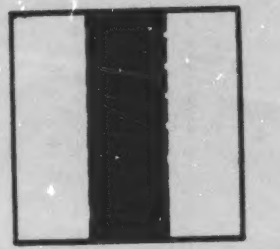

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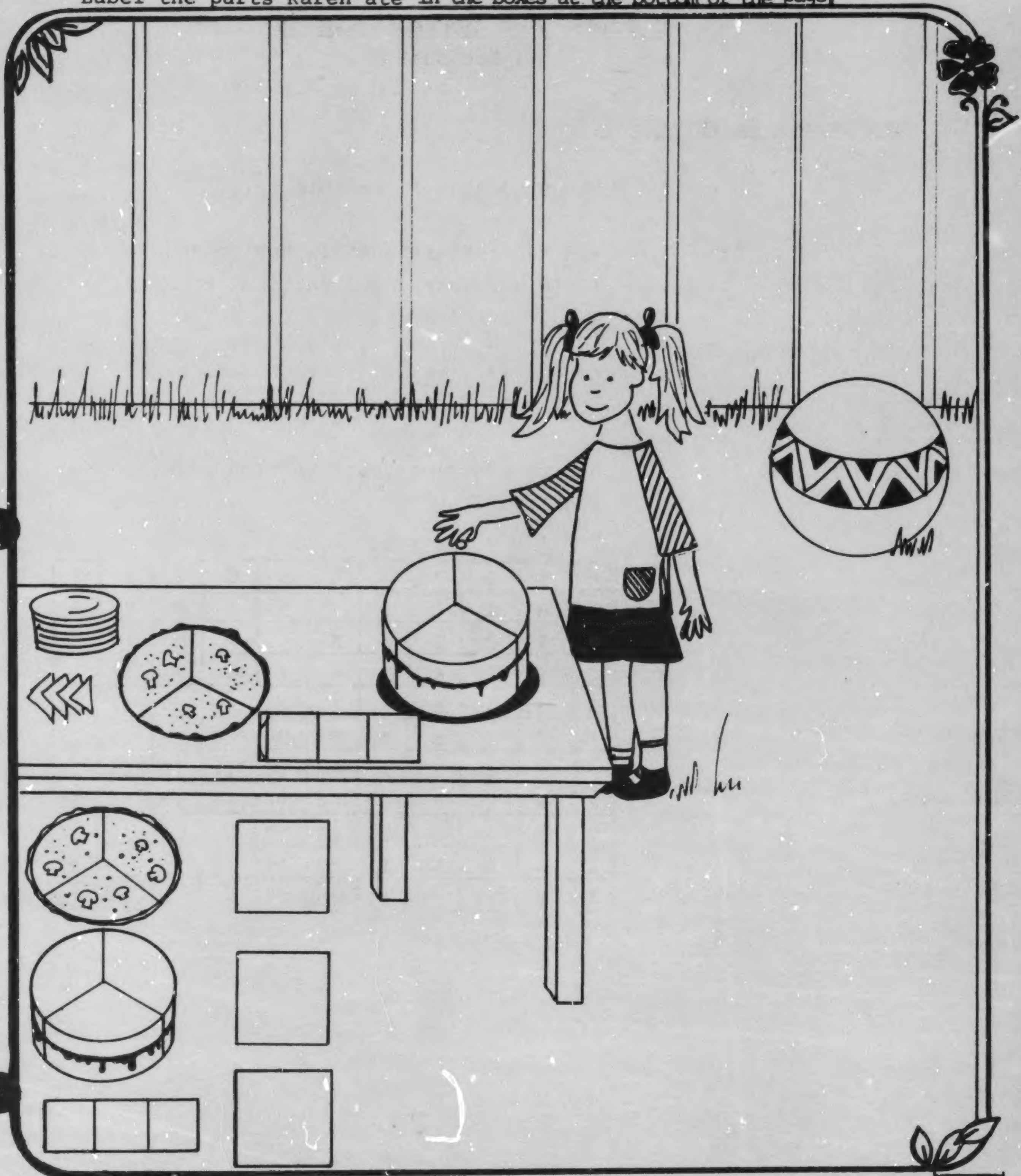
P.O. 1.06.03.03

NAME: ______________________ CLASS: __________ DATE: ________

Shade in the parts to show how much Karen ate. Karen ate 2 pieces of the cake, 1 slice of the pizza and all of the granola bar. Label the parts Karen ate in the boxes at the bottom of the page.



Unit 59

1.02.06 SUMS THROUGH EIGHTEEN

(3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

1.02.06.01A add two 1-digit numbers having sums through 18 in horizontal and vertical formats;

e.g.,

$$\begin{array}{r} 7 \\ +7 \\ \hline 14 \end{array} \qquad \begin{array}{r} 9 \\ +8 \\ \hline 17 \end{array} \qquad \begin{array}{l} 7 + 7 = 14 \\ 8 + 9 = 17 \end{array}$$

1.02.06.02B use an addition table to find sums through eighteen;

e.g., 9 + 4 = 13

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	⑬	14	15	16	17	18

1.02.06.03B identify simple patterns on the addition table;

e.g.,

+	0	1	2	.	.	.	9
0	0						
1	1						
2	2						
.							
.							
.							
9							

1.02.06.04A solve story problems related to skills learned in this module.

e.g.,

There were 7 girls in a room. Eight (8) more girls walked in. How many girls are in the room now?
7 + 8 = 15 or 8 + 7 = 15
There are 15 girls in the room now.

I have 9 books. I went to the library to get 9 more books. How many books do I have in all?
9 + 9 = 18
I now have 18 books.

1.02.06

VOCABULARY

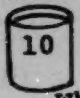
TERMS

patterns
doubles
row
column

GETTING STARTED

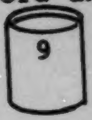
Prepare and display a can and cubes. Say, "This can has ten cubes in it. Some are red and some are white. Can you guess how many are red and how many are white?" Record student responses until all possible combinations have been listed. Remove the cubes from the can and circle the correct combination.

e.g.,



Red	White
8	2
9	1
7	3...

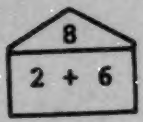
Repeat this activity using other sums less than 10. e.g., 8, 6, 7, 9. Record answers horizontally and vertically.



red	9	8	7
white	0	1	2

Draw a house on the chalkboard and say, "The address of this house is 8. Can you find the names of the families who live in this house?" Write 2 + 6 as the first family. Encourage the students to recite and record the other number facts which add up to 8.

e.g.,



Continue this procedure with sums through ten using both horizontal and vertical formats.

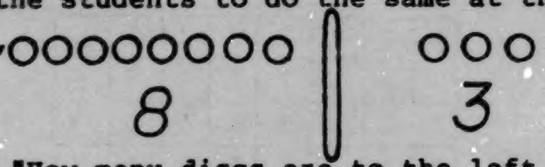
808

1.02.06

1.02.06.01 **add two 1-digit numbers having sums through 18 in horizontal and vertical formats**

STRATEGY 1: Prepare and distribute eighteen chips, discs or cubes and an ice cream stick in a plastic bag to each student. Say, "Place 11 of the discs in a row on your desk." Demonstrate at the chalkboard. Say, "How many discs are in the row? Separate the discs into two groups and place the stick between them." Ask the students to do the same at their desks.

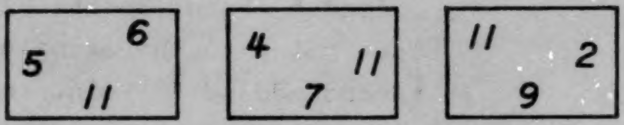
e.g.,



Say, "How many discs are to the left of the stick? ...the right? Who can write a number sentence to show that when the groups are joined they equal eleven?" Ask a student to come to the chalkboard to write the number sentence. (8 + 3 = 11)

Repeat this procedure to show other number facts for 11 in both horizontal and vertical formats. Use this procedure for other one digit numbers having sums through 18.

STRATEGY 2: Display the following groups of numbers on the chalkboard.



Prepare and distribute 18 cubes or discs to each student. Say, "I want you to use your cubes and the numbers on these cards to make some addition sentences. Remember that the largest number on these cards is always the sum of the other two numbers." Elicit each number sentence and write it on the chalkboard in both horizontal and vertical format. Ask the students to use their cubes to make other number sentences for eleven. Write them on the chalkboard.

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STRATEGY 2: cont'd

Repeat this procedure for sums through 18. Ask the students to copy the number facts in their notebooks after they have been written on the chalkboard.

1.02.06.02 **use an addition table to find sums through 18**

STRATEGY 1: Prepare and display a 0 through 6 addition table. e.g.,

+	0	1	2	3	4	5	6
0	0	1	2	3	4	5	6
1	1	2	3	4	5	6	7
2	2	3	4	5	6	7	8
3	3	4	5	6	7	8	9
4	4	5	6	7	8	9	10
5	5	6	7	8	9	10	11
6	6	7	8	9	10	11	12

Say, "We are going to learn how to use an addition table to find sums. What is the sign in the upper left hand corner of the table?"

Write 2 + 3 = on the chalkboard. Point to the 2 in the example and say, "The 2 is the first addend." Point to the $\boxed{2}$ under the plus sign. Then point to the example and say, "The 3 in the second addend." Point to the $\boxed{3}$ in the top row of the addition table. Demonstrate where 2 + 3 = 5 is on the addition table. Show students how to use their pointer fingers to find addends and sums.

For additional reinforcement demonstrate how to use an oaktag reverse "L" to help locate both addends. Say, "Slide it to the 2 and over to the 3. The arrow points to the sum."

1.02.06

STRATEGY 1: cont'd

e.g.,

+	0	1	2	3	4	5	6
0	0	1	2	3			
1	1	2	3	4			
2	2	3	4	5			
3							
4							
5	5	6	7	8	9	10	

STRATEGY 2: Prepare and display a large addition table. Distribute individual addition tables and one red and one blue disc to each student. Point to the + sign in the upper left hand corner of the addition table. Say, "This symbol tells us that this is an addition table."

Write $3 + 4 = \boxed{}$ on the chalkboard. Ask the students to locate the three under the plus sign and place a blue disc on it. Next ask the students to locate the 4 that is to the right of the plus sign and put a red disc on it. Say, "We want to find the sum of 3 + 4. When the two discs meet, we will have found the sum. Move the blue disc that is on the 3 across the table until it is in line with the red disc. (Demonstrate.) Move the red disc down the table until it meets the blue disc. Put the red disc on top of the blue disc. This is the point where the two addends meet. If we look under the discs, we will find the sum of 3 + 4. What is the sum of 3 + 4?" (7)

Continue this procedure for other sums through eighteen.

1.02.06

1.02.06.03 identify simple patterns on the addition table

STRATEGY 1: Prepare and display a large addition table showing sums to 18. Distribute an addition table and two crayons (red and blue) to each student.

Point to the plus (+) sign on the demonstration chart while directing students to find it on their charts. Say, "Find the row under the + sign. Lightly color it red." Demonstrate at the large chart. Say, "Find the row next to the + sign. Lightly color it blue." Demonstrate. Say, "This column and row are like fences around this part of the chart. They help us keep the addends separate from the sums." Demonstrate at the large addition table as you say, "Put your finger where the first column and row meet inside the fence. What numeral do you see? (0) Look at the numerals in that column. What pattern do you see? (The numerals are in counting order from 0 through 9.) What do you notice about the numerals in the first row?" Demonstrate how students should move their fingers to the second column and row. Say, "What numeral is in this box? (1) What pattern do you see in this column and row?" Continue until the students can relate the fact that each row is increased by 1.

Distribute a small strip of oaktag to each student. Ask them to place it diagonally on the table. Demonstrate. Say, "Can you find a pattern?" (Point out that similar numbers are in diagonal columns, e.g., all the sixes are in a diagonal line, etc.)

STRATEGY 1: cont'd

Ask the students to see the 'doubles' patterns by touching the 4 in the horizontal and vertical columns and meeting in the center at the sum. They can shade in the sums of all doubles and observe the diagonal pattern.

Continue this procedure observing other patterns which appear on the table.

STRATEGY 2:

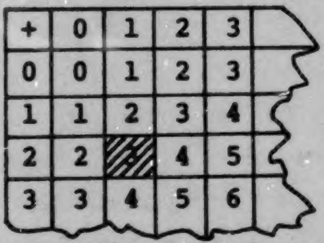
Prepare and distribute an addition table to each student. Write the following examples on the chalkboard.

e.g.,

2	3	4	5	6	7	8	9
+1	+2	+3	+4	+5	+6	+7	+8

Say, "Find the sum of the first example. What is it? (3) Can you find the sum on the addition table?" Demonstrate. Shade in the sum.

e.g.,



+	0	1	2	3
0	0	1	2	3
1	1	2	3	4
2	2	▨	4	5
3	3	4	5	6

Continue this procedure for the other examples. Say, "What do you notice about the boxes that are shaded? (They are on the diagonal.) Can you find other patterns in the table?"

Encourage the students to locate other addition patterns and share them with their classmates.

1.02.06.04 **solve story problems related to skills learned in this module**

STRATEGY 1:

Write the following problem on the chalkboard.

9 red balloons.
2 green balloons.
How many in all?

Say, "Finding the answer to a problem is like climbing

1.02.06

STRATEGY 1: cont'd

a staircase. You must go step by step. The first step is to READ the problem to find out what is asked and what is given." Ask a student to read the problem. Say, "What is asked? What information is given? We PLAN by deciding if we should add or subtract. How many in all usually means to add. What numbers will be added to find how many in all?" Write 9 + 2 = ☐ on the chalkboard. Say, "Now we have to SOLVE the addition sentence. How much is 9 + 2? (Write 11 below 9 + 2.) How many balloons in all?" Finally, ask students to LOOK BACK and see if they have all the necessary information.

Repeat this procedure with other pairs of 1-digit numbers having sums through 18.

e.g.,

6 large pencils
9 small pencils
How many in all?

STRATEGY 2:

Create stories to go with picture cards which you display. Say, "I am going to make up a story about the crayons. My mother bought me 7 crayons. My father bought me 9 crayons. How many crayons do I have altogether? (Write the facts on the chalkboard.) Let's follow our problem solving steps."

e.g., Steps to Problem Solving

READ, PLAN, SOLVE, LOOK BACK

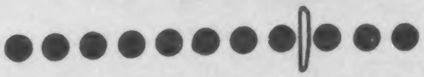
Ask a student to read the problem. Say, "What does the problem ask? What information is given? Are we going to add or subtract? What number sentence can we write to find out how many crayons in all? (7 + 9 = ☐) Our next step is to solve the number sentence." Ask the students to solve the problem in their notebooks. Then say, "Our last step is to look back at what we have done to check our work."

Repeat the steps to problem solving with other picture cards, creating stories and developing number sentences.

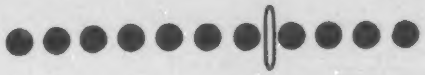
P.O. 1.02.06.01

NAME: ______________________ CLASS: __________ DATE: ________

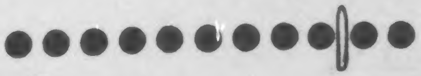
Look at the picture. Write a number sentence.
Add the numbers.

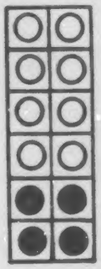


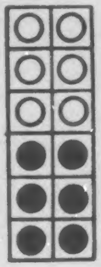
8 + 3 = 11

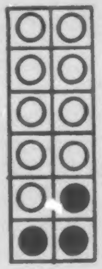


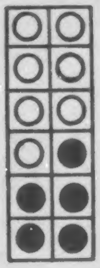
7 + 4 = ☐



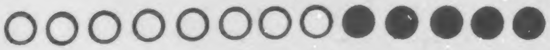




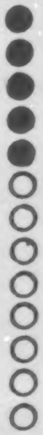




$$\begin{array}{r} 8 \\ +\ 4 \\ \hline 12 \end{array}$$



8 + 5 = ☐



$$\begin{array}{r} 5 \\ +\ 8 \\ \hline \end{array}$$

P.O. 1.02.06.02

NAME: ______________________ CLASS: ________ DATE: ________

Use the completed addition table to find the sums.

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

3+2=☐

4+3=☐

5+3=☐

4+4=☐

6+6=☐

2+7=☐

2+2=☐

7+8=☐

6+3=☐

7+4=☐

9+6=☐

7+5=☐

P.O. 1.02.06.03

NAME: ____________________ CLASS: ________ DATE: ________

Fill in the addition table.

+	0	1	2	3	4	5
0	0	1				
1	1	2				
2	2	3	4			
3						
4						
5						

What pattern do you see in each row?

____

What pattern do you see in each column?

____

Do you see any other patterns?

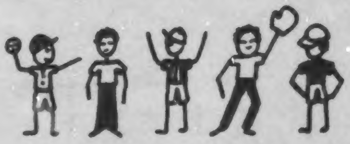
____

P.O. 1.02.06.04

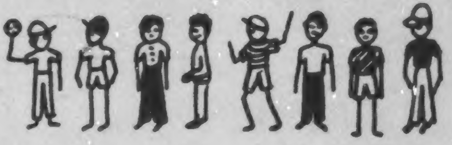
NAME: ______________________ CLASS: ________ DATE: ________

Solve each story problem.

There are 5 boys playing ball.



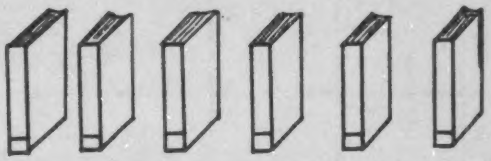
Eight (8) more boys come to play.



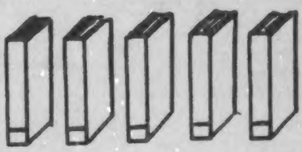
How many boys are playing ball now?

5 + 8 = ☐

I have six (6) books.



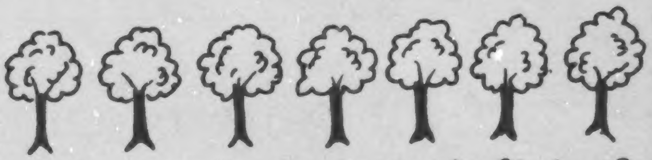
I went to the library to get five (5).



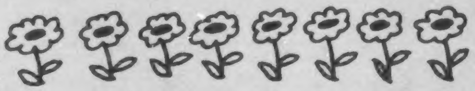
How many books do I have now?

I went to the park.

I saw seven (7) trees.



I also saw eight (8) flowers.



How many trees and flowers did I see?

Unit 60

1.01.17 COUNT AND GROUP BY TENS THROUGH FIFTY

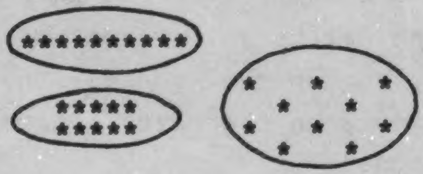
(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

*1.01.17.01A identify groups of 10;

e.g.,



*1.01.17.02A order and write numbers 10 through 50 by tens.

e.g.,

10,20,30,40,50

1.01.17

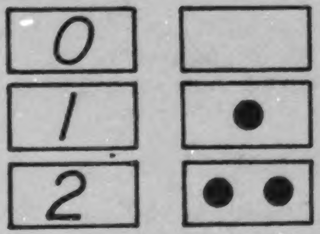
VOCABULARY

TERMS	SYMBOLS
ten	10
twenty	20
thirty	30
forty	40
fifty	50

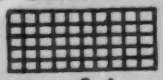
GETTING STARTED

Prepare and display a set of cards numbered 0 through 10 and a set of matching dot cards. Place the numeral cards in counting order, vertically on the chalkboard. Say, "Choose a dot card. Count the number of dots on the card. Place the card next to its matching numeral card."

e.g.,



Prepare and distribute grid paper (1" square) and a crayon to each student. Ask the students to hold the paper so that the horizontal side is longer than the vertical side. e.g.,



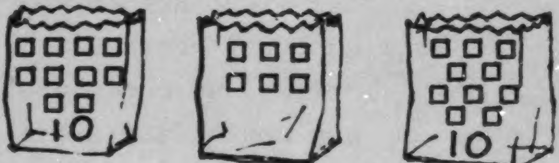
Say, "I will say a number. Color the same number of boxes as the number I say. Put your finger on the first row. Starting with the first box, color seven squares." Continue to call out numbers one through ten.

1.01.17

1.01.17.01 identify groups of ten

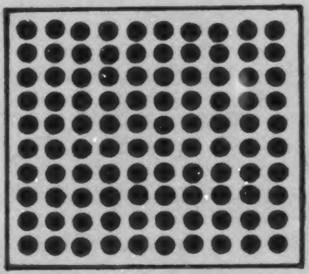
STRATEGY 1: Prepare and distribute bags of objects to each group of five students. Place several bags on each table. Ask the students to take a bag and count the number of objects in it. If there are ten objects in the bag, the student writes the numeral 10 on it. The bags are passed from neighbor to neighbor. Each student counts the objects in each bag as a check.

e.g.,



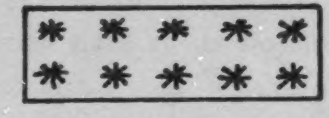
STRATEGY 2: Prepare and distribute a rexographed dot sheet to each student.

e.g.,



Display several oaktag pattern cards that show groups of 10 objects. Point to one card

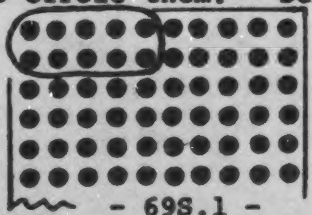
e.g.,



and say, "How many stars do you see on this card? (10) We have a group of ten stars." Repeat this procedure with all the cards.

Direct the students' attention to the rexographed sheet and say, "We are going to find groups of ten dots on our sheets. Each time you find a group of ten dots circle them." Demonstrate.

e.g.,



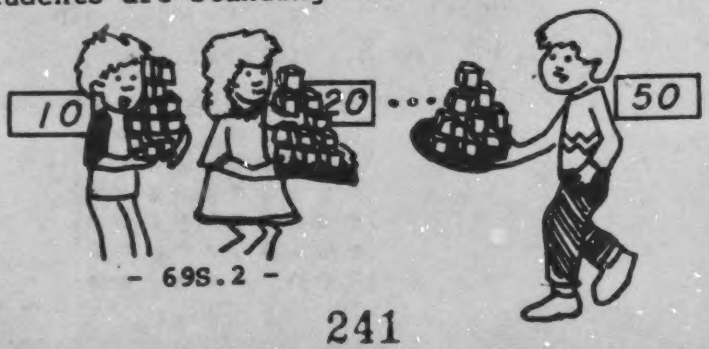
1.01.17

1.01.17.02 **order and write numbers 10 through 50 by tens**

STRATEGY 1: Prepare and distribute groups of interlocking cubes to each group of five students. Ask each student to count out and interlock ten cubes. The rest of the cubes are collected. Walk around and ask each student to identify his/her group of cubes. Say, "How many cubes do you have?" The first student places his/her set of cubes in the middle of the table, points to the group and says, "This is a group of ten cubes." Go on to the next student and repeat the procedure. As that group is added to the center say, "Ten cubes and ten cubes. Now there are twenty cubes." Point to each group and say, "Ten, twenty... " Ask the students to repeat the count with you. Continue until there are fifty cubes in the center of the table.

Hold up numeral cards 10 through 50 in multiples of ten. Say the name of the numeral represented, e.g., 10, 20, ...50. Ask the students to repeat the name of each numeral. Display the cards on the chalkboard ledge in counting order. Ask a student to come up to the chalkboard with his/her group of ten cubes and stand in front of the numeral card 10. Say, "Jack is holding his group of cubes. There are ten cubes in his group." Ask another student to come up and stand in front of the numeral card 20. Say, "Carol has her group of ten cubes. Now there are two groups of ten." Point to each student as you count "ten, twenty". Ask the other students to count with you. Continue until five students are standing with a total of 50 cubes.

e.g.,



1.01.17

STRATEGY 1: cont'd Ask the students to return to their seats. Hold up a group of ten cubes. Say, "How many cubes are in the group? Who can write the numeral 10 on the chalkboard?" Hold up the remaining groups of ten and ask the students to count and write the corresponding numeral on the chalkboard.

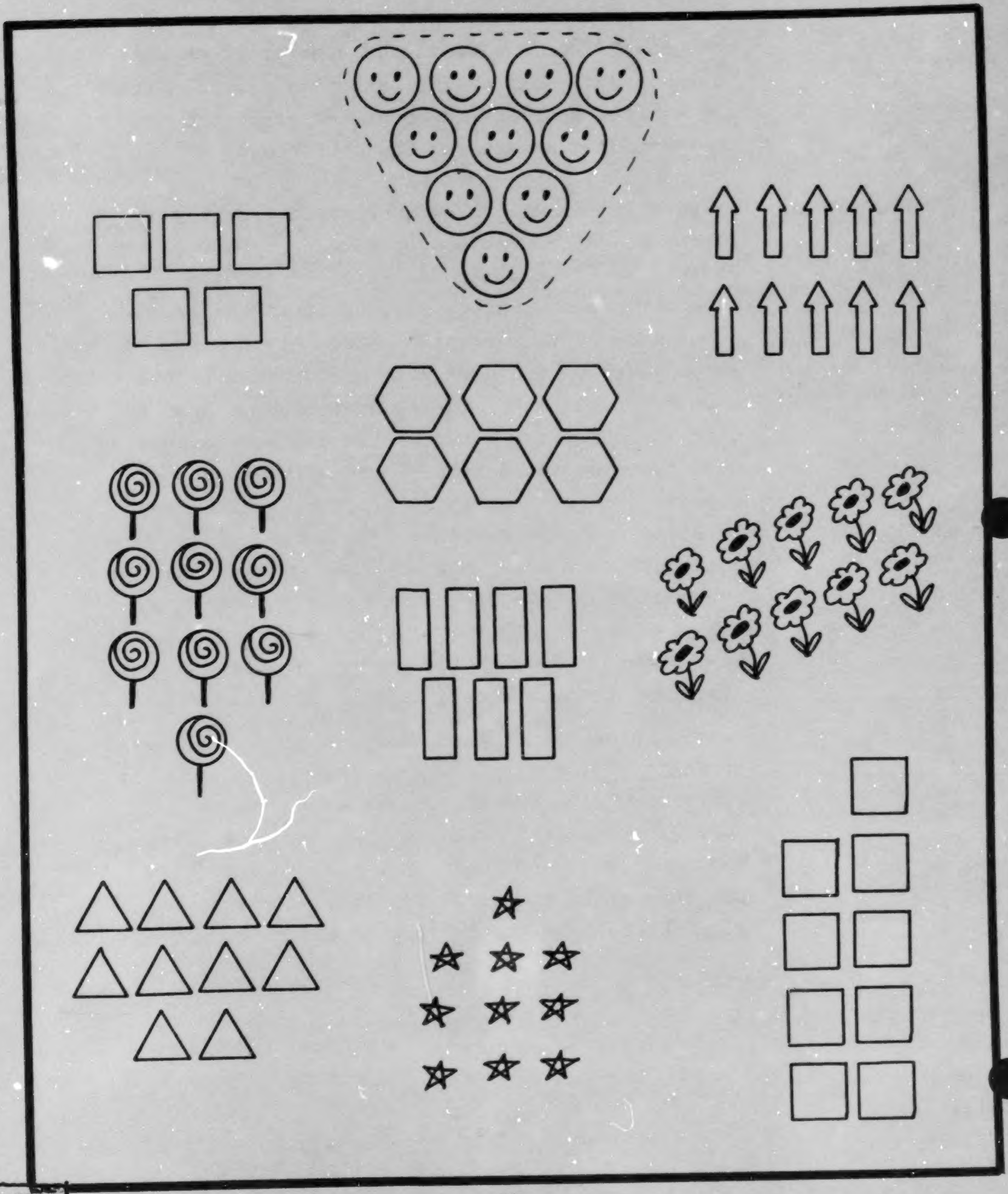
STRATEGY 2: Prepare and display groups of ten objects on a flannelboard or draw groups of ten objects on the chalkboard. Ask a student to count the number of objects in each group. Say, "What is the same about each of the groups?" (Each group contains ten objects.) Use string to make a ring around each group of ten on the flannelboard or draw a circle around each group of ten on the chalkboard. Say, "When we see a circle around these groups of objects we know that there are ten in each group." Point to each group. Say, "How many? Did we have to count? Why not? Now we know how many there are in each group. We can count by tens to see how many we have in all." Point to a circled group. Say, "Ten." Point to two circled groups and say, "Twenty." Repeat through fifty.

Display pictures of groups of ten objects. Ask the students to identify how many there are, counting by tens. Write the numeral below the picture. Say, "This numeral tells us how many we counted. Who can read it for us?" Ask the students to trace the numeral in the air. Continue with the other pictures to show groups through fifty.

P.O. 1.01.17.01

NAME: ______________________________ CLASS: __________ DATE: __________

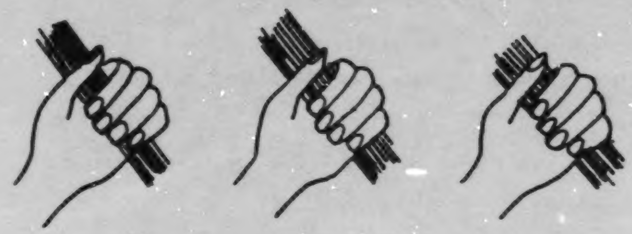
Circle groups of ten. Color each group of ten.



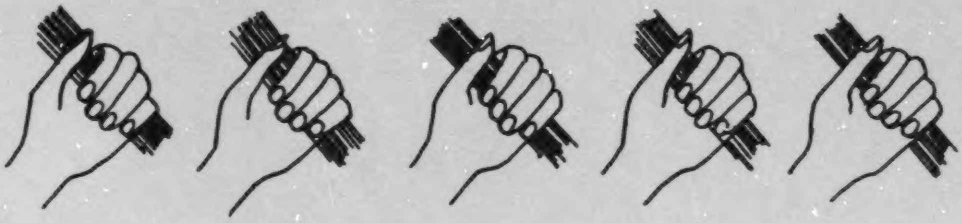
P.O. 1.01.17.02

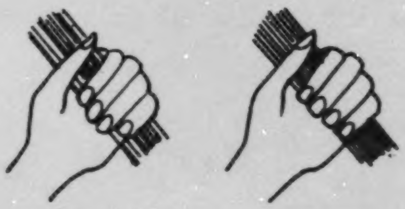
NAME: ________________________ CLASS: ________ DATE: ________

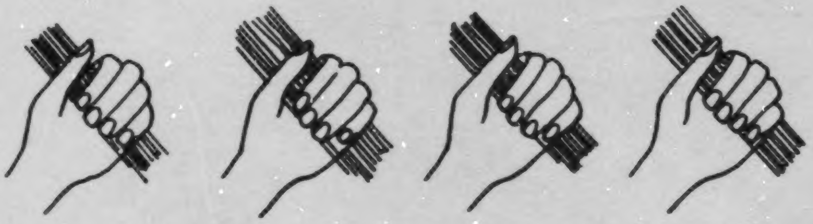
Each hand is holding ten sticks.
Count by tens and write the number of sticks shown in each row.

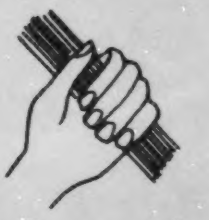


30









1.01.18 PLACE VALUE FROM 10 THROUGH 50

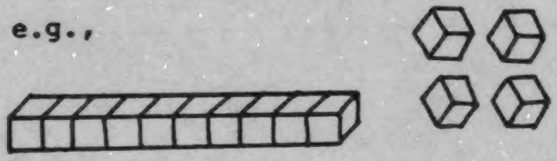
(2-3 Lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

*1.01.18.01A identify and write the place value of numerals 10 through 50;

e.g.,



_1_ ten(s) + _4_ ones

*1.01.18.02A write the numerals 10 through 50 in expanded notation.

e.g.,

15 = 10 + 5

1.01.18

VOCABULARY

TERMS

column
place value

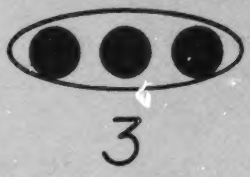
GETTING STARTED

Prepare and display a large container filled with about twenty-five marbles. Say, "In this container there are more than ten but less than fifty marbles." Ask the students to guess how many marbles are in the container. Record their guess-timates on a chart.

Remove the marbles from the container. Count them aloud with the students.

Prepare and distribute numeral cards 0 through 10. Say, "Arrange your cards in counting order. Which card did you place first, next... last?" Display a group of ten magnetic discs on the chalkboard. Ask a student to come to the chalkboard, form a group of up to ten discs and write the corresponding numeral under the group.

e.g.,



1.01.18

1.01.18.01 **identify and write place value of numerals 10 through 50**

STRATEGY 1: Prepare and distribute a place-value mat, a container of bundling materials and rubber bands to each group of four or five students.

Tens	Ones

Say, "Take ten sticks out of your container. Place them under the ones column on your mat. Count the sticks again. Make sure you have ten and bundle them with a rubber band. Now that they are bundled, what do we call them? (one ten) Where do they belong now? (under the tens column) Take a few more sticks and place them on your mat. Be sure it is fewer than ten. Where did you place them?" (In the ones column.) Ask several students how many sticks they have on their mats. Say, "What number is one ten and three ones? What number is one ten and four ones?" Write these numerals on the chalkboard. Continue this procedure having the students bundle sticks through fifty. Group the students to facilitate bundling. Write the corresponding numbers on the chalkboard.

STRATEGY 2: Prepare and distribute place value mats and interlocking cubes to each student. Ask the students to make one ten by joining ten single cubes together. Say, "Place the one ten on your mat." Ask a student to demonstrate at the chalkboard. Say, "Take six cubes. Where will you place them? How many cubes do we have now? I want to show eighteen. What do I need? Where do I place my cubes?" Write 18 = 1 ten + 8 ones on the chalkboard.

Continue this procedure asking the students to show other numbers, e.g, 26, 42, 37, etc. After displaying the number on their placemats, ask the

STRATEGY 2: cont'd students to write the place value in their notebooks, e.g., 26 = 2 tens + 6 ones.

1.01.18.02 **write the numerals 10 through 50 in expanded notation form**

STRATEGY 1: Prepare and display bundles of ten sticks and single sticks on a table. Label one chair TENS and one chair ONES. Ask two students to sit on these chairs. Say, "I will call out a number, e.g., 26. The student who is sitting in the TENS chair must go to the table and get the correct number of tens. How many tens do you need? (2) The student in the ONES chair must get the correct number of ones. How many ones do you need?" (6) Write 26 in standard notation and in expanded notation (20 + 6) on the chalkboard. Ask students to write the standard and expanded numerals in their notebooks.

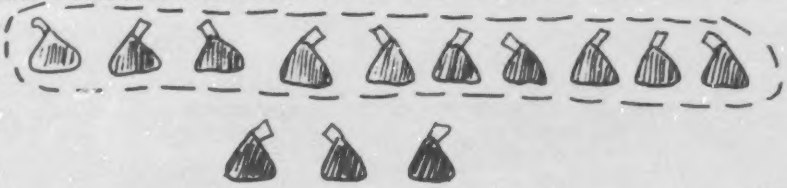
STRATEGY 2: Prepare and distribute one index card and nine index cards that have been cut in half, e.g., ▭ □, to each student. Ask the student to write the numeral 20 on the large card and the numerals 1 through 9 on the small cards, one number to a card. Call out numbers from 21 through 29. Each time a number is announced, ask the students to place a card from their set of numeral cards, 1 through 9, on top of the zero on their 20 card. Say, "Separate your cards. The card 20 plus the card 8 equals 28." Write 28 = 20 + 8 on the chalkboard. Vary this procedure by asking the students to make 20 plus 4 and then name the standard numeral they made. Ask one student to write the standard numeral on the chalkboard and another student to write the expanded form at the chalkboard.

Repeat this procedure for numerals through 50.

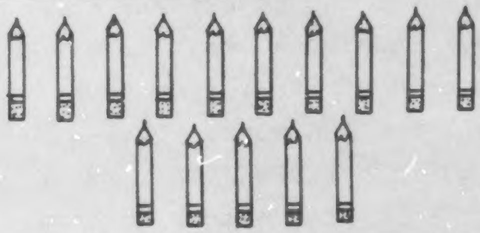
P.O. 1.01.18.01

NAME: ______________________ **CLASS:** ________ **DATE:** _______

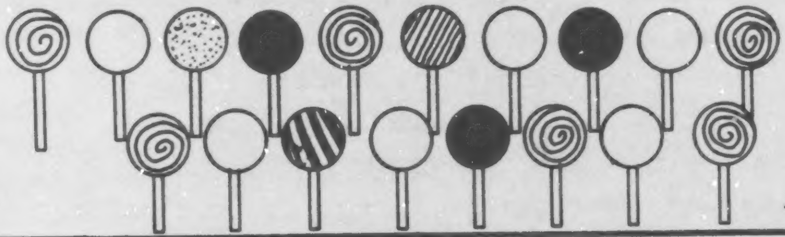
Circle the group of ten.
Write the number of tens and ones in each group.



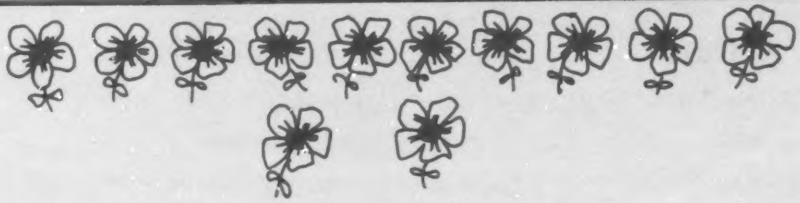
_1_ ten + _3_ ones



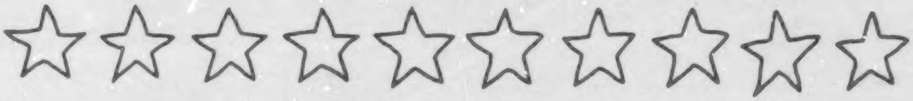
____ ten + ____ ones



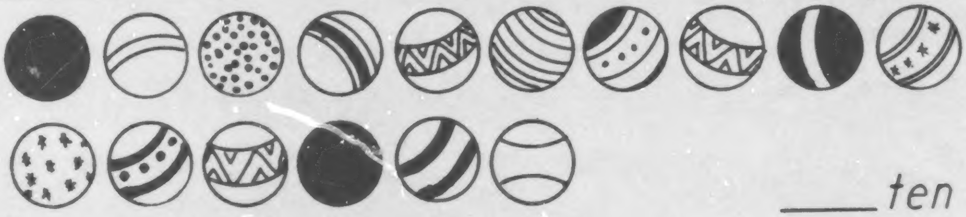
____ ten + ____ ones



____ ten + ____ ones



____ ten + ____ ones

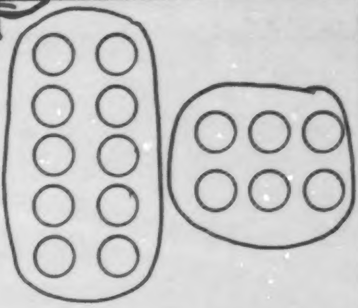
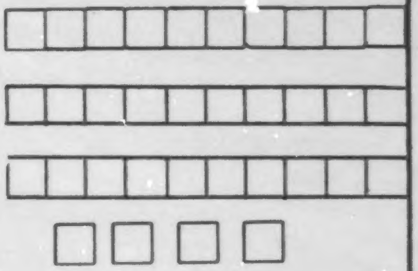
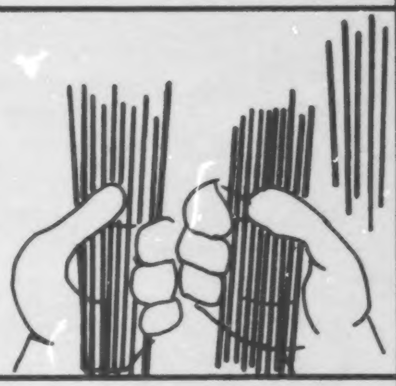
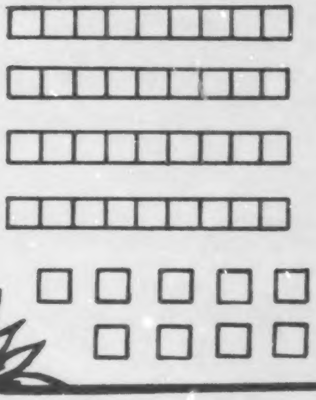


____ ten + ____ ones

P.O. 1.01.18.02

NAME: ____________________ CLASS: ________ DATE: ________

Write the expanded form for each.

	= 16	= 10 + 6
	= 34	=
	= 25	=
	= 49	=

Unit 62

1.01.19 ORDER NUMERALS FROM 10 THROUGH 50

(4-5 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

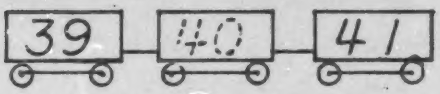
1.01.19.01B identify the numeral that comes one after a given numeral (10 through 50);
e.g.,
21 $\boxed{22}$

1.01.19.02A count and write by ones from 10 through 50 in correct counting order;
e.g.,
20,21,22,23...50

1.01.19.03B identify the numeral that comes one before a given numeral (10 through 50);
e.g.,
$\boxed{21}$ 22

1.01.19.04B count and write backwards by ones from 50;
e.g.,
50,49,48,...0

1.01.19.05B	identify the numeral that comes between two given numerals; e.g., 30 $\boxed{31}$ 32
1.01.19.06A	solve story problems related to skills learned in this module. e.g., Which train number belongs between train numbers 39 and 41? Train number 40 belongs between trains numbered 39 and 41.



1.01.19

VOCABULARY

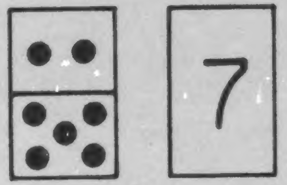
TERMS

tens
groups
ones
digit, numeral
2-digit number
column

GETTING STARTED

Prepare a set of dot cards, zero through nine, and matching numeral cards to play "Concentration". Begin the game with any four dot cards and their matching numeral cards. Turn the cards over so that neither the numerals nor the dots are visible. Place the cards on the chalkboard ledge. Ask a student to pick any two cards and tell whether they are a match.

e.g.,



A student who makes a match wins a point. If no match is made, the cards are placed in their original positions on the chalkboard ledge. Continue this activity until every match has been made.

Play the game "I AM THINKING OF A NUMBER". Say, "I am thinking of a number. It is one more than 8 and one less than 10. Can you guess my number?" Ask a student to identify the number and make up his/her own riddle. Number facts through 10 may be used as part of the riddle. e.g., My sum is one more than 3 + 3.

1.01.19

1.01.19.01 **identify the numeral that comes one after a given numeral (10 through 50)**

STRATEGY 1: Prepare a set of cards numbered 10 through 50. Display the cards in piles, e.g., (10-19) (20-29) (30-39) (40-49) (50), on a desk near the chalkboard. Shuffle the cards in each pile. Place the numeral card 10 on the chalkboard ledge. Point to the numeral 10 and ask the students which numeral comes next. Ask a student to find the next numeral card and place it after the 10. Repeat this procedure until all the numerals are placed on the chalkboard ledge.

STRATEGY 2: Prepare and distribute a set of cards numbered 10 through 30 to the students. Ask the student with the numeral card 10 to come up to the front of the classroom and stand with the numeral card facing the class. Say, "We are going to play a game. What number comes after ten?" Ask the student holding that numeral card to stand next to the student holding the numeral 10. Repeat until all students are standing in correct sequence. When the sequence is completed say, "The student with the numeral after 16 sit down, the numeral after 23 sit down... "

Repeat the procedure for numbers 30 through 50.

1.01.19.02 **count and write by ones from 10 through 50 in correct counting order**

STRATEGY 1: Prepare a large chart for the numerals 10 through 50 (omit some of the numbers). Tell the students that they are going to play a counting game. Assign the numeral ten to the first student at

STRATEGY 1: cont'd

table one. In round robin fashion, ask the students to call out the next number through 50. Display the chart on the chalkboard. Point to a row of numerals. Ask students to write in the missing numerals for that row. Continue this procedure until the chart is complete.

STRATEGY 2:

Play a train game. Say, "I am number ten." Move around the classroom. Randomly stop by a student (station) and ask him/her what number comes next. If he/she gives the correct counting number (11), he/she can latch on to your waist. If not, the train goes to another student (station). Keep going until "car 50" (or the last student) is latched on. Repeat this procedure with other starting numbers.

1.01.19.03 **identify the numeral that comes one before a given numeral (10 through 50)**

STRATEGY 1:

Prepare and display a clothesline with numeral cards (10 through 50) attached with clothespins. Ask the students to close their eyes while you remove some cards and place them on the chalkboard ledge. Ask the students to find the card that comes before a given numeral and attach that card in the correct place.

Distribute one card to each student and ask them to hold up the card that comes before e.g., 42, 39, 30, 25... If a student does not know he/she has the correct card, direct the student's attention to the clothesline.

STRATEGY 2:

Prepare and display a large chart containing the numerals 10 through 50. Say, "I will call out a

STRATEGY 2: cont'd numeral. When I call your name, come up to the chart and color the square that comes before the numeral that I called. Say the name of the numeral you colored." Repeat this procedure until sufficient reinforcement has been given.

1.01.19.04 **count and write backwards by ones from 50**

STRATEGY 1: Prepare and display a number line (0 through 50) with a picture of a rocket blasting off before the zero. Point to each numeral as you count backwards with the class to zero. Ask individual students to point to any numeral and then ask the class to use that as a starting point for counting backwards to "blast-off" time. Select various students to write the numerals to "blast-off" on the chalkboard as other students take turns counting backwards. Repeat this procedure until sufficient reinforcement is given.

STRATEGY 2: Prepare a clothesline, clothespins, numeral cards for 10 through 50 and a rexographed sheet with a picture of a clothesline and missing numerals. Display the clothesline with clothespins attached and the numeral cards placed in random order on a table. Attach the numeral card 50 to the end of the line. Ask the students to select the card that comes before 50 and attach it to the clothespin. When all of the cards are attached, count backwards from 50. Ask the students to write the numerals in their notebooks in descending order. Distribute the rexographed sheet. Ask the students to fill in the missing numbers on the clothesline.

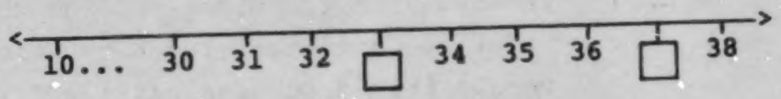
1.01.19

1.01.19.05 **identify the numeral that comes between two given numerals**

STRATEGY 1: Prepare a number line numbered 10 through 50 and a rexographed number line with missing numerals. Display the number line. Place one hand on the numeral 25 and one hand on the numeral 27. Say, "Which numeral comes between these numerals?" Repeat this procedure using other sets of numerals.

Distribute the rexographed number line with numerals missing. Say, "What numeral comes between 32 and 34? Where does it go on the number line?" Point to the position on the displayed number line. Ask the students to write the missing number on their number lines. Repeat this procedure until the number line is complete.

e.g.,



STRATEGY 2: Write the numerals 33 and 35 on the chalkboard with a space between them. Say, "What number comes between 33 and 35?" (34) Write 34 in the space between 33 and 35. Repeat using different sets of numbers.

Call out two numerals through 50, e.g., 34, 36. Ask a student to name the three numbers that fit in this group, e.g., 34, 35, 36.

Continue this procedure until all students have had an opportunity to participate.

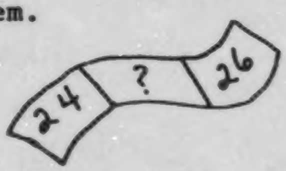
1.01.19

1.01.19.06 **solve story problems related to skills learned in this module**

STRATEGY 1: Ask the students to sit in a circle and tell a simple story. Say, "I am selling tickets. What ticket comes after 23?" Hold a sock puppet in one hand and pretend the puppet is responding, "Twenty-four." Say to the puppet, "What do you mean?" The puppet answers, "The ticket number after 23 is 24." Ask various students to hold the puppet and repeat this procedure with other stories. Guide them to answer in a complete sentence. When the puppet answers in one word, say, "What do you mean?" Adapt this procedure for numerals before and between given numerals.

STRATEGY 2: Draw simple pictures on an experience chart. Show the pictures and ask the students to make up a story about them.

e.g.,



These are circus tickets 24 and 26. What ticket is missing?

There are 48 passengers on an airplane. If one more passenger came, how many would be on the plane? If one passenger left, how many passengers would be on the airplane?

Repeat this procedure to reinforce numerals that come before, after and between given numerals.

P.O. 1.01.19.01

NAME: ______________________________ CLASS: __________ DATE: ________

Use the chart to answer the questions.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

Which numeral comes next? 38 39

Which numeral comes next? 21 _____

Which numeral comes next? 40 _____

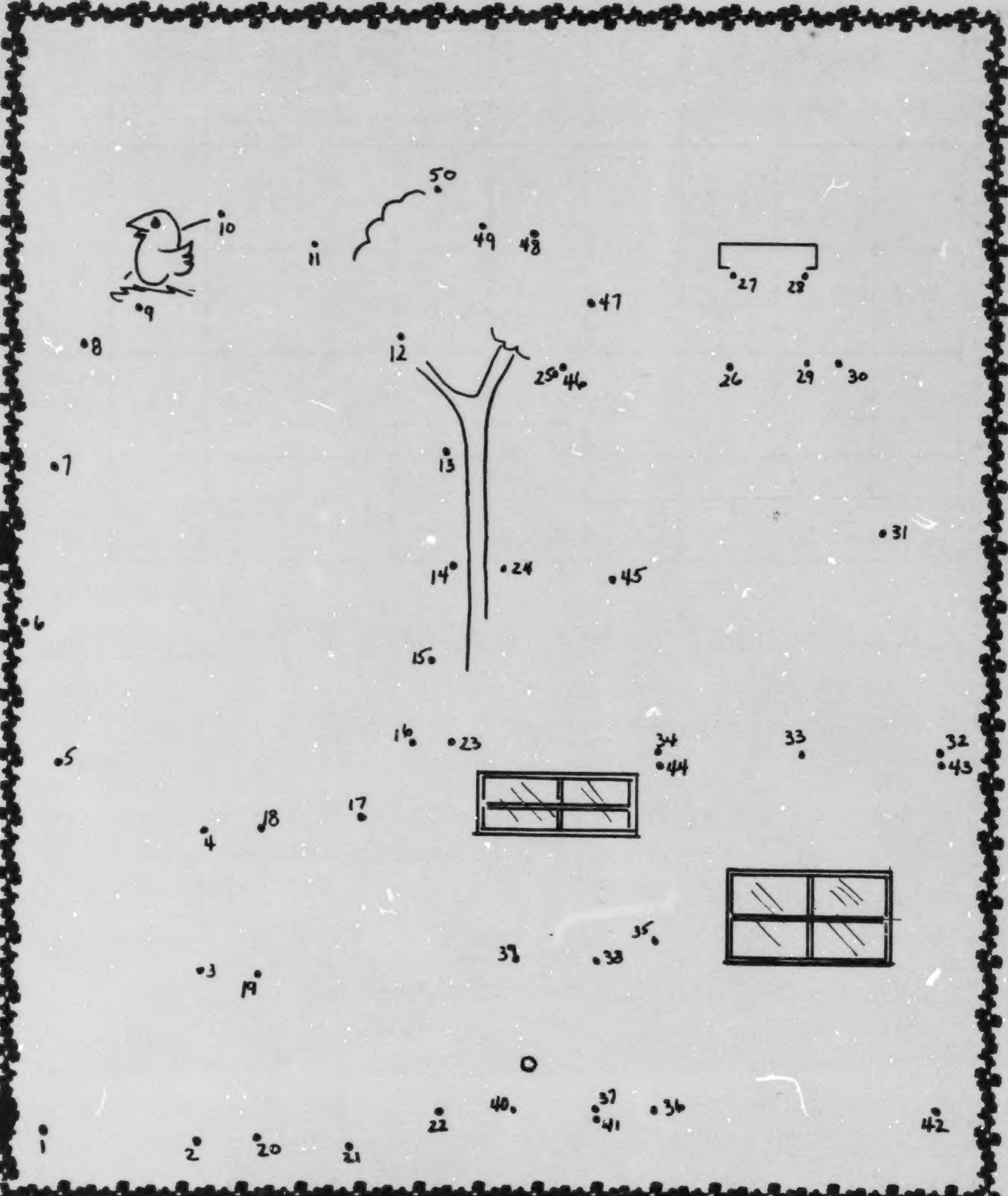
Which numeral comes next? 26 _____

Which numeral comes next? 13 _____

P.O. 1.01.19.02

NAME:____________________ CLASS:________ DATE:________

Find the numeral 1. Connect the dots from 1 through 50.



50
10
11
49
48
27
28
9
47
8
12
25
46
26
29
30
7
13
31
14
24
45
6
15
16
23
34
44
33
32
43
5
17
18
4
35
39
38
3
19
40
37
41
36
22
42
1
2
20
21

P.O. 1.01.19.03

NAME: ______________________ CLASS: ________ DATE: ________

Fill in the missing numerals on the chart.
Use the chart to answer the questions.

1	2	3	4	5		7		9	10
11		13	14	15	16		18	19	20
21	22	23		25	26	27	28	29	
31	32		34	35	36	37	38		40
	42	43	44		46	47	48	49	50

Which numeral comes before 16? ______

Which numeral comes before 31? ______

Which numeral comes before 42? ______

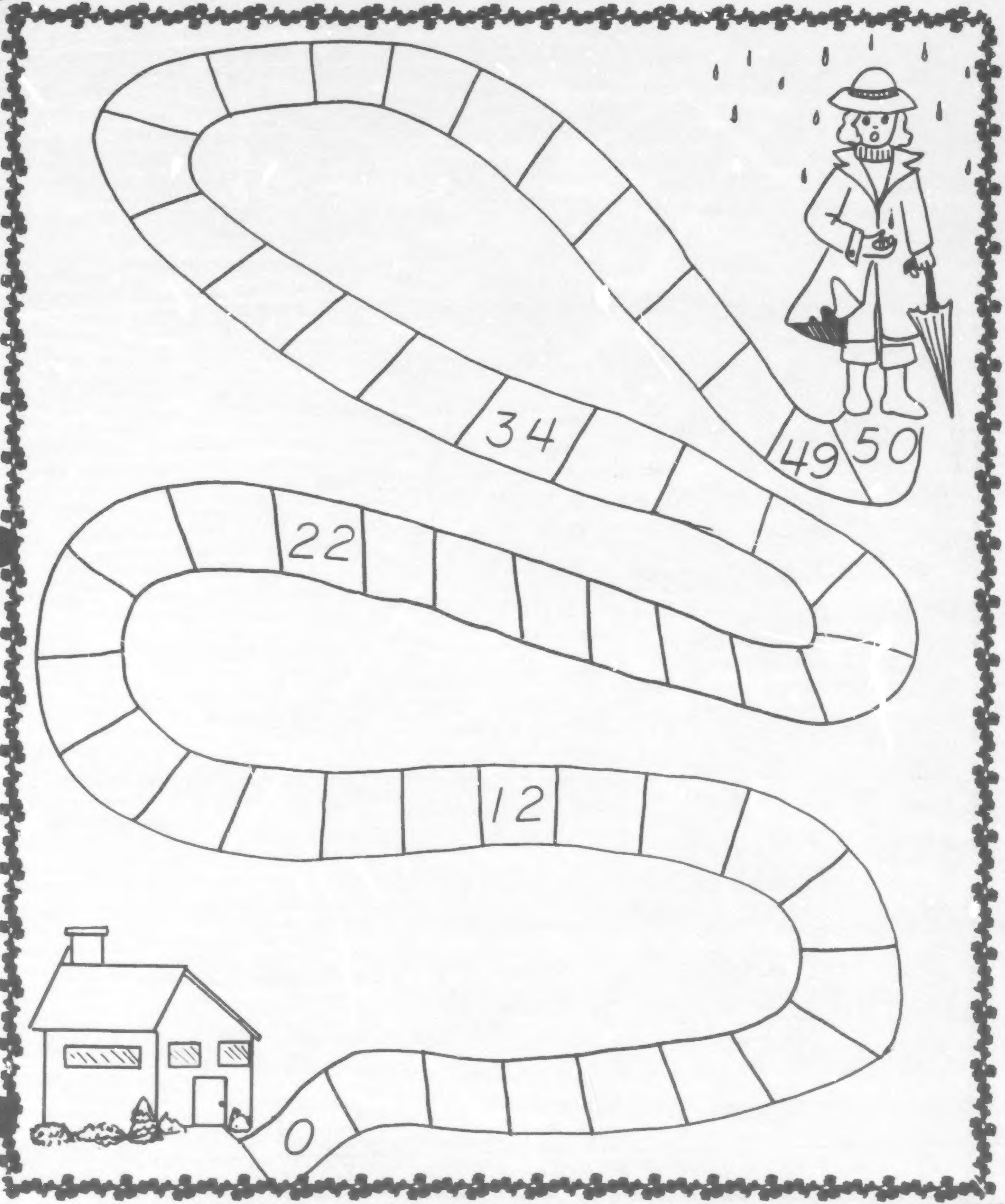
Which numeral comes before 28? ______

Which numeral comes before 46? ______

P.O. 1.01.19.04

NAME: ______________________ CLASS: ________ DATE: ________

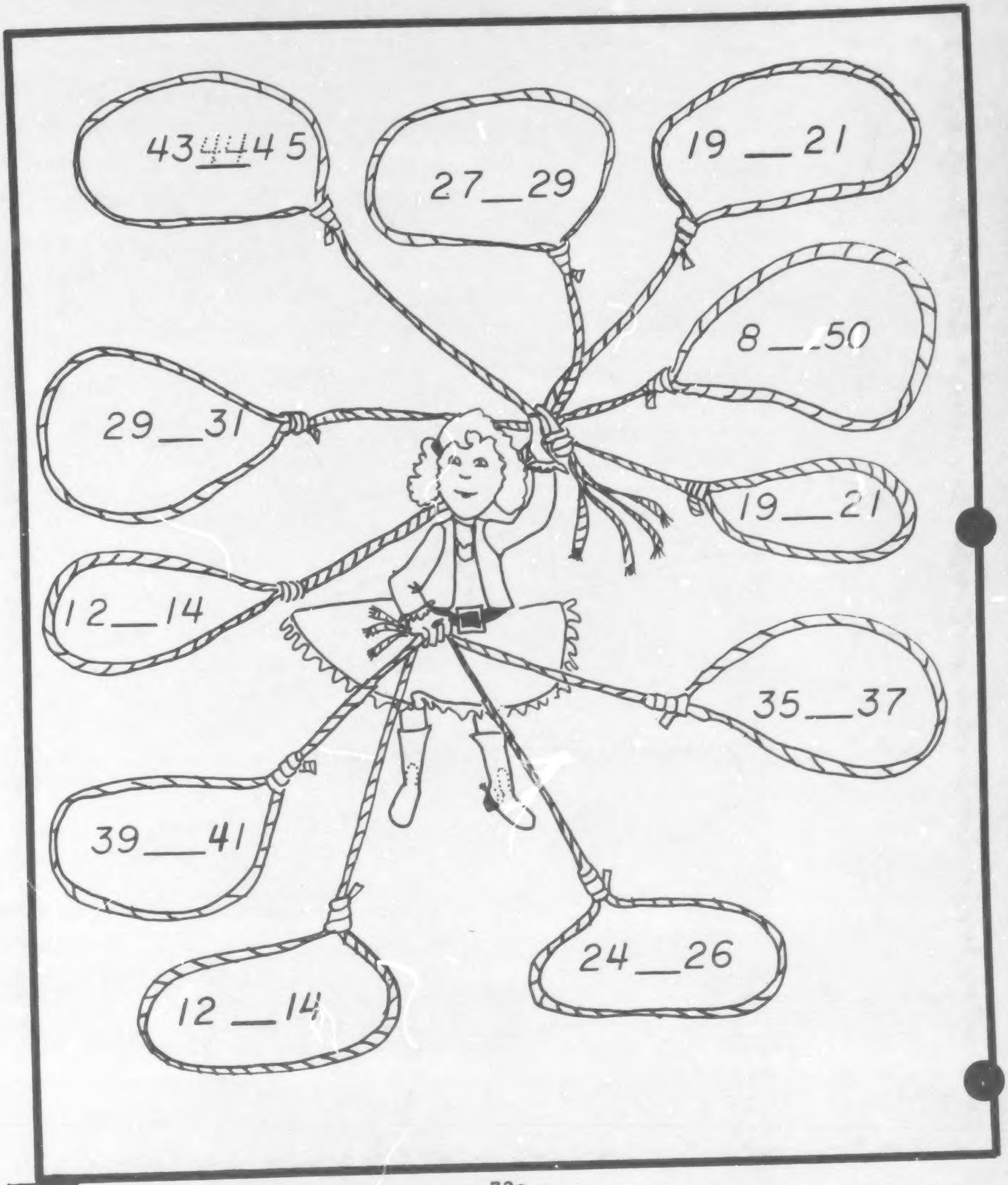
Fill in the numerals to get home before it rains.


0
12
22
34
49
50

P.O. 1.01.19.05

NAME:____ CLASS:_________ DATE:________

Write the numeral that comes between the numerals given.



43 44 45

27 __ 29

19 __ 21

8 __ 50

29 __ 31

19 __ 21

12 __ 14

35 __ 37

39 __ 41

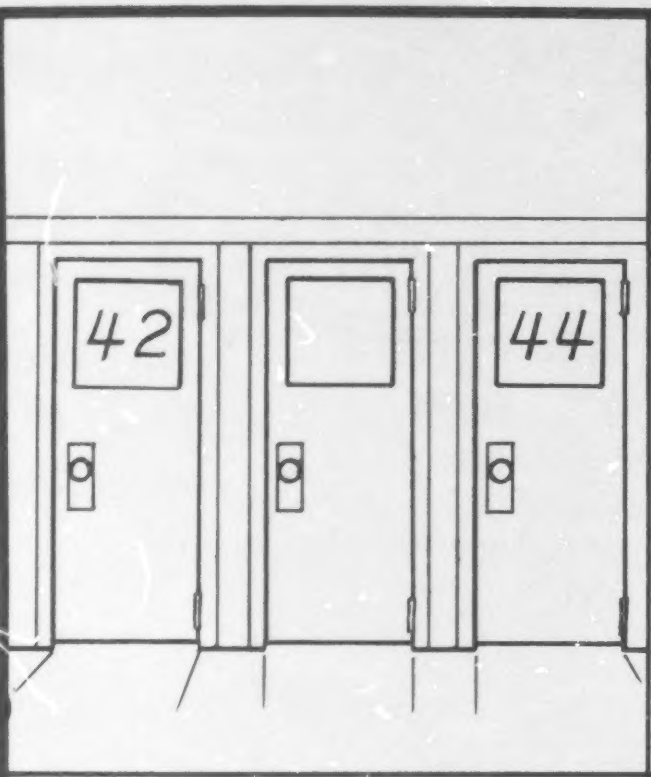
24 __ 26

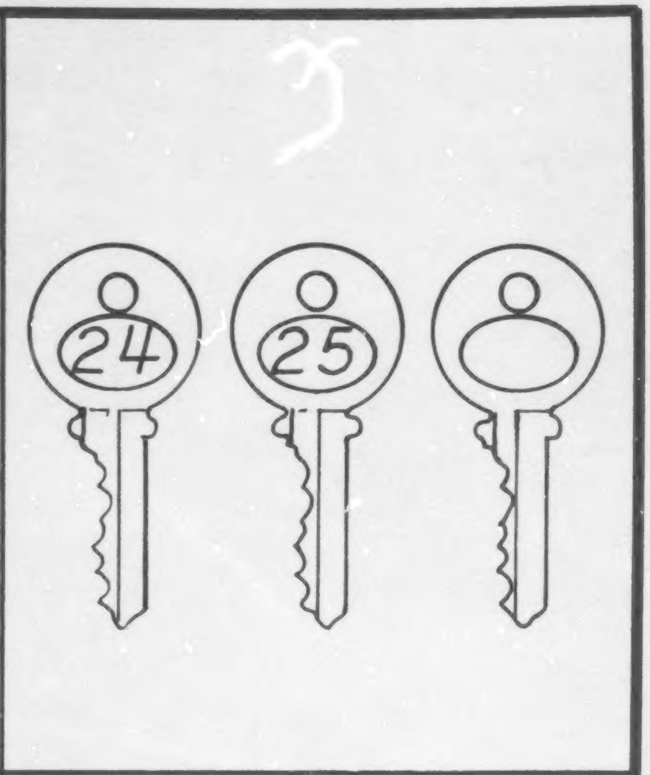
12 __ 14

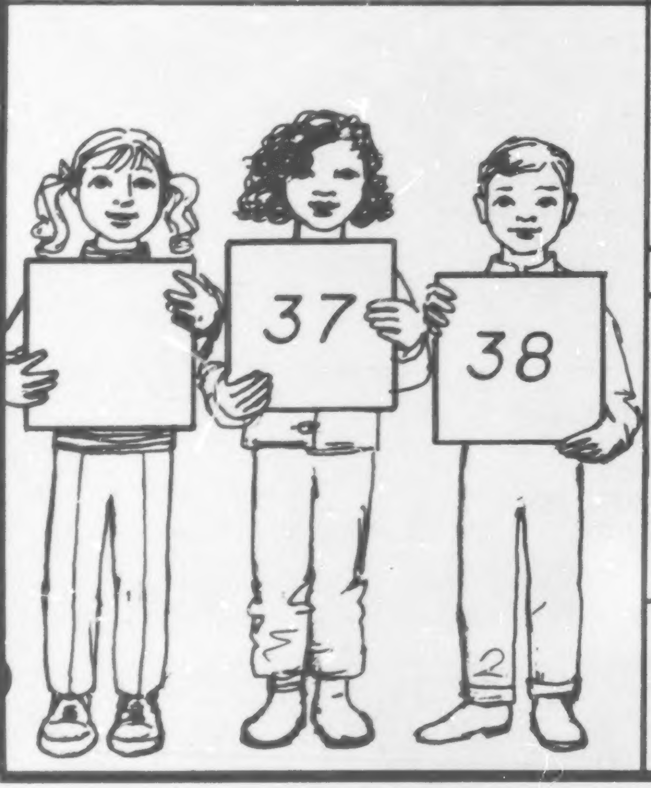
P.O. 1.01.19.06

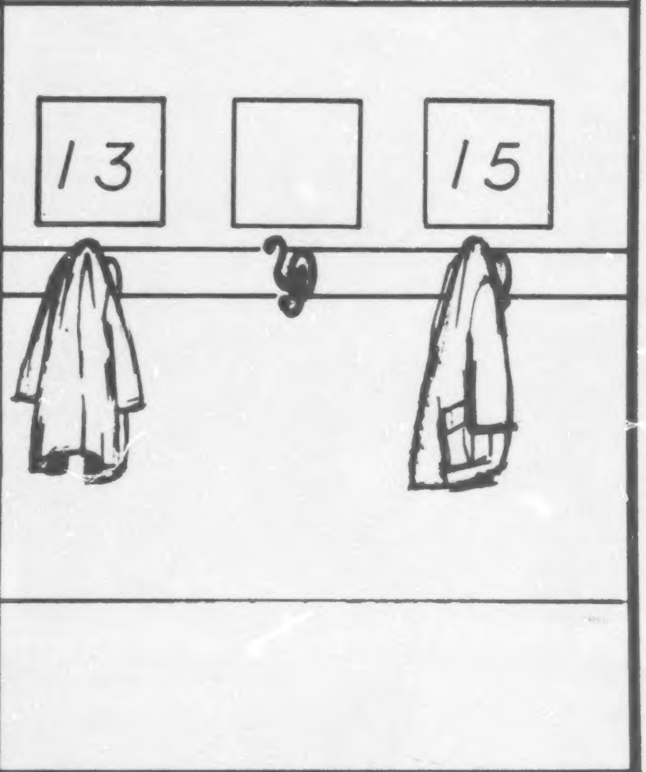
NAME: ______________________________ CLASS: __________ DATE: ________

TEACHER: Create a word problem related to each picture.
Reinforce "before," "between" and "after."









Unit 63

1.01.20 PLACE VALUE FROM 50 THROUGH 99

(5 lessons)

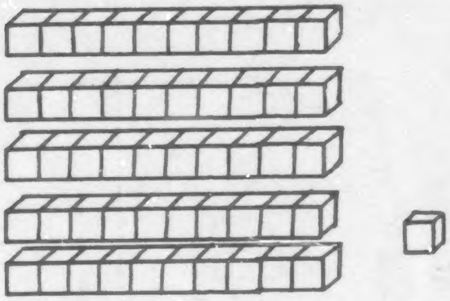
PERFORMANCE OBJECTIVES

The student will be able to...

1.01.20.01A order and write numbers 50 through 90 by tens;
e.g., 50, 60... 90

1.01.20.02A identify and write the place value of numerals from 51 through 99;
e.g.,

5 tens + 1 one = 51



_5_ tens + _1_ one = 51

1.01.20.03B write the numerals 51 through 99 in expanded notation.
e.g.,

57 = 50 + 7

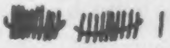
1.01.20

VOCABULARY

TERMS	SYMBOLS
fifty-one... ninety-nine	51...99
tens	
ones	

GETTING STARTED

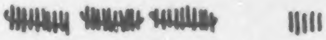
Prepare and display pictures of bundles of tens and units (ten through fifty).

e.g., 

Ask the students to identify the number of tens, the number of ones and the number they represent. Ask a student to write the numeral on the chalkboard. (21)

Repeat the procedure with other tens and ones.

Prepare and distribute sticks, rubber bands and a sheet of paper to each student. Each student should have between ten to fifty sticks. Say, "Everyone has sticks and rubber bands. Let's make bundles of tens. Count ten sticks and put a rubber band around them. Bundle as many tens as you can. On your paper, draw a picture of your bundles and the remaining sticks. Then write the number of tens and ones and the numeral that represents them." Demonstrate.

e.g., 

3 tens 5 ones

35

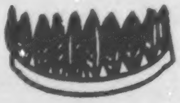
Ask several students to show their pictures. Say, "Who has a number greater than forty? Tell us about your number." Ask the students to use their pictures and place themselves in counting order in front of the room.

1.01.20

1.01.20.01 **order and write numbers 50 through 90 by tens**

STRATEGY 1: Prepare and display pictures of ten Indian headdresses, each one with ten feathers.

e.g.,



Display five headdresses and ask the students to count by ten as they count the total number of feathers on the five headdresses. Ask the students to write the numerals 10, 20, 30, 40, 50 in their notebooks as they count the feathers again. Say, "Look at the digit in the tens place in each number. Notice that they follow counting order, e.g., 10, 20, 30... Add another Indian headdress to the display. Say, "This headdress has the same number of feathers as each of the others. How many feathers are on this headdress? If we add this headdress to the others, how many feathers will we have altogether?" Write the numeral 60. Say, "Look at the tens digit. See how it follows the counting order." Continue adding to the headdresses for a total of 90. Point to the numerals as the students count, fifty, sixty, seventy, eighty, ninety.

Dictate the numbers fifty, sixty, seventy, eighty, ninety in random order. Ask the students to write each numeral in their notebooks. When the numerals have been written ask the students to rewrite them in counting order.

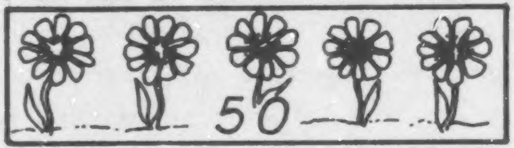
STRATEGY 2: Prepare and distribute cards containing pictures of objects arranged in multiples of ten (50 through 90), e.g., bundles of sticks, bowling pins, houses with ten windows, flowers with ten petals... Ask

1.01.20

STRATEGY 2: cont'd

the students to identify the multiples of ten. Say, "Let's place these pictures in correct number order on our desks. Place the card with five flowers on your desk. How many petals are on each flower? (10) Let's count by tens to find the number of petals on all the flowers." Ask the students to write 50 on the bottom of the card.

e.g.,



Continue this procedure until all the cards are in order and labeled with their corresponding numeral.

1.01.20.02 **identify and write the place value of numerals from 51 through 99**

Prepare and distribute a tens and ones mat, bundling material, two sets of numeral cards (0 through 9) and paper to each pair of students. One student will count the sticks while the other student records the numerals. Draw a tens and ones chart on the chalkboard to demonstrate the procedure. Each pair of students will start with five bundled tens and 49 loose sticks. Hold up a bundle of sticks. Say, "How many sticks am I holding? Do we have to count the sticks? Why? How many bundles of ten am I holding?" Ask the students to count their bundles. Say, "How many bundles do you have? Hold up the numeral card to show how many bundles of ten you have. Which card are you holding? In which column of our mat will we place the 5? Why?

TENS	ONES
5	

Are we holding any loose sticks right now? Hold up the numeral which shows that there are no loose

STRATEGY 1: **cont'd**

sticks. Which card will you choose? In which column will we place it? Why?

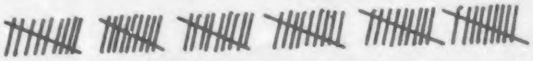
e.g.,

TENS	ONES
5	0

We have 5 tens and 0 ones. What number are we showing? Let's add another stick to our five bundles." The keeper of the count places a stick near the bundle. The recorder places the numerals in the proper columns on the mats. Say, "We have five sets of ten and one loose stick. Fifty plus one more equals fifty-one. How many tens? How many ones? What number do we now have?" Continue until ten sticks have been placed. Say, "How many loose sticks do we have? What must we do when we have ten sticks?" Ask the keeper of the count to place a rubber band around the sticks and place it with the other bundles. Say, "How many bundles do we have now? Count the bundles by tens. What number do we have? How many loose sticks?" The recorder places the numeral cards on the mat to correspond with the bundles.

e.g.,

TENS	ONES
6	0



Continue this procedure through ninety-nine.

STRATEGY 2: Prepare and distribute to each student squared material and a tens and ones recording sheet.

e.g.,

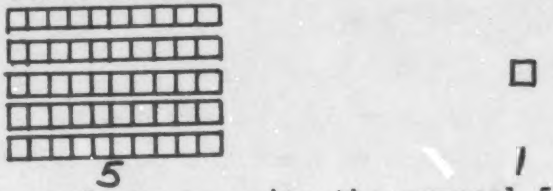
NUMBER
___ = __ tens __ ones
___ = __ tens __ ones
___ = __ tens __ ones

Display a set of squared material on the chalkboard. Ask the students to use their squared

STRATEGY 2:
cont'd

material to show five tens and one one. Count the tens by ten (ten, twenty... fifty). Point to the one. Say, "One, fifty-one." Write the numeral 51 on the chalkboard.

e.g.,



Ask the students to write the numeral 51 on their sheet and record the number of tens and ones in the spaces provided. Continue with other numbers. Ask the students to model the tens and ones using their squared material and record the data.

1.01.20.03 **write the numerals 51 through 99 in expanded notation form**

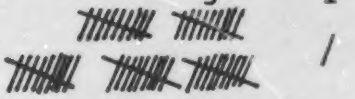
STRATEGY 1:

Hold up a rubber band and ask the students to identify it. Slowly begin to expand and contract it. Discuss the action with the students. Say, "We can also stretch or expand numbers." Write the numeral 51 on the chalkboard. Ask a student to read it. Say, "Listen very carefully. I am going to stretch the number as I say it. Fifty, (pause) one." Repeat it again. Say, "Open your eyes and look at the chalkboard." Point to the digit 5 and say fifty. Point to the digit 1 and say one. Ask the students to do the same as you point to each digit. Point to the digit 5. Say, "When I pointed to this part of the numeral, I said fifty." Write 50 on the chalkboard. Say, "When I pointed to this part of the numeral, I said one." Write 1 on the chalkboard. Say, "Fifty and one." Ask a student to place a plus sign between the 50 and the 1. Display five tens and one one below the numeral 51. Next to the numeral 51, write, = 50 + 1.

1.01.20

STRATEGY 1: e.g.,
cont'd

TENS	ONES	
5	1	= 50 + 1



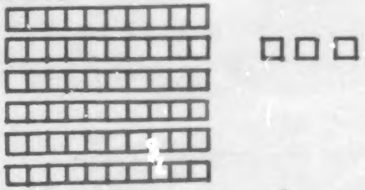
Say, "Five tens is fifty and one more is fifty-one." Continue this procedure with other numbers. Ask the students to name the two parts of the number they hear, the number for the tens and the number for the ones.

STRATEGY 2: Prepare and distribute tens strips and unit pieces to each student. Display a numeral card, e.g., 63. Say, "How many tens are there in sixty-three? Place 6 ten strips on your desk." Demonstrate on the chalkboard. e.g.,

Say, "What does six tens equal? Let's count each ten strip by tens (ten, twenty... sixty). In your notebooks write the numeral 60. There are 6 tens in 63, how many ones are in the ones place? Show 3 ones on your desk." Demonstrate on the chalkboard. e.g.,

Say, "We have 6 tens or 60 and 3 ones or 3." Write 3 on the chalkboard. Ask the students to do the same in their notebooks. Point to the sixty. Say, "Sixty." Draw a plus sign between the sixty and the three. Ask the students to do the same. Point to the plus sign. Say, "Plus." Point to the three. Say, "Three." Write = 63 after the three. Say, "Equals 63." Ask the students to complete their number sentence. Continue this procedure with other numbers through ninety-nine.

e.g.,



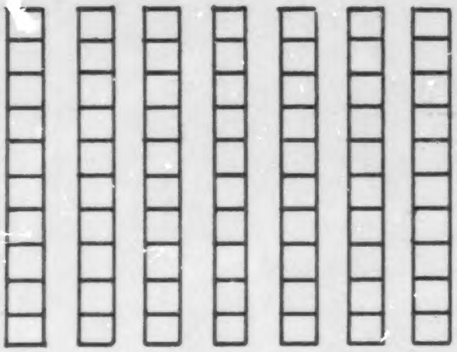
60 + 3 = 63

271

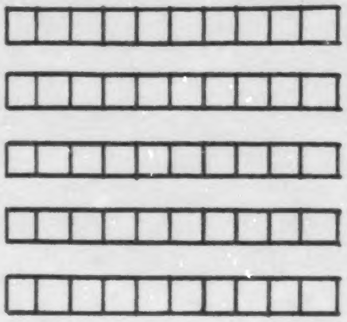
P.O. 1.01.20.01

NAME: ____________________ CLASS: __________ DATE: ________

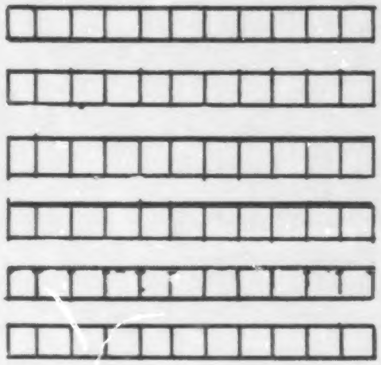
Count by tens and write the number.
Put the numbers in counting order on the lines at the bottom.



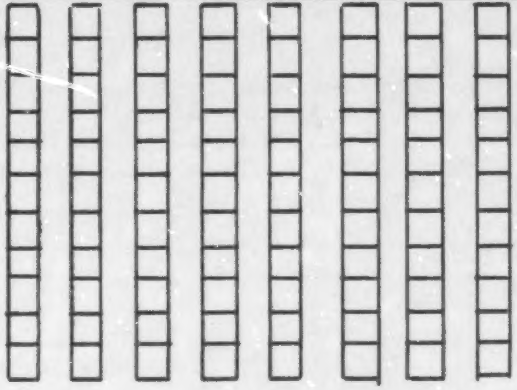
______



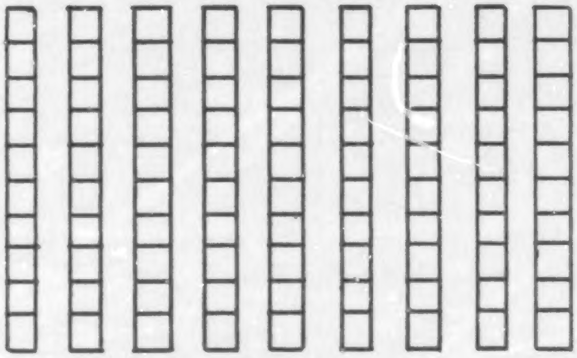
______



______



______



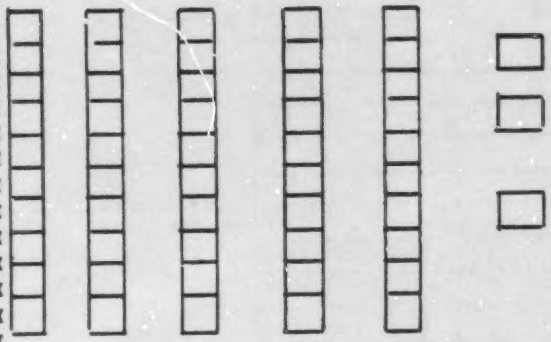
______

______ 60 ______ ______ ______

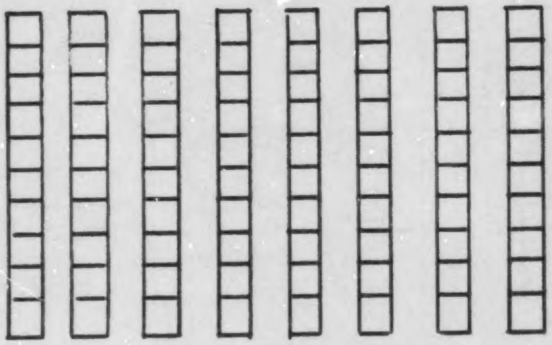
P.O. 1.01.20.02

NAME: ____________________ CLASS: ________ DATE: ________

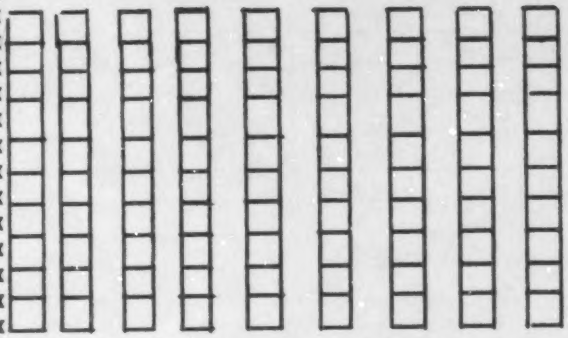
Look at each picture. Count the number of tens and ones. Fill in the blanks.



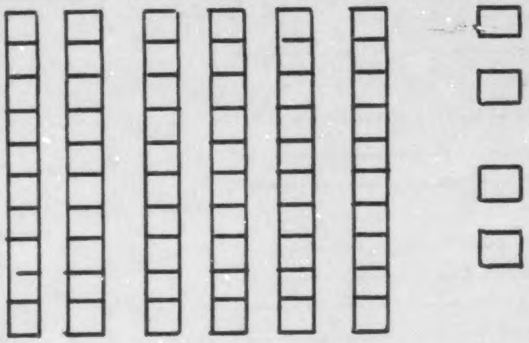
5 tens + 3 ones



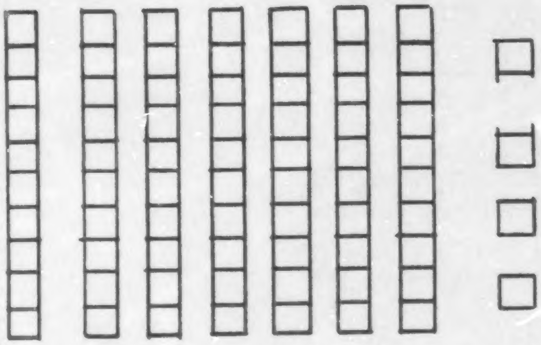
9 tens + 0 ones



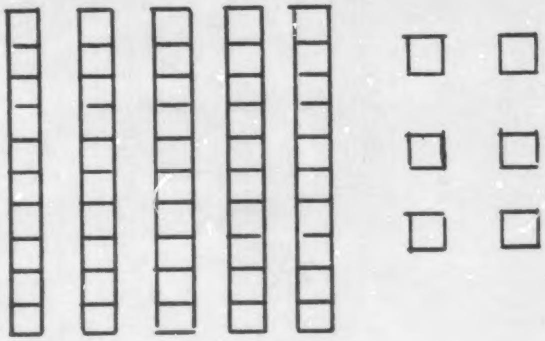
____ tens + ____ ones



____ tens + ____ ones



____ tens + ____ ones



____ tens + ____ ones

P.O. 1.01.20.03

NAME: ______________________ CLASS: __________ DATE: __________

Write the number of tens and ones that make up the given numbers.

		Tens		Ones	Tens		Ones		
92	=	9	+	2	2	+	6	=	26
65	=	___	+	___	___	+	___	=	49
59	=	___	+	___	___	+	___	=	63
84	=	___	+	___	___	+	___	=	74
70	=	___	+	___	___	+	___	=	39
53	=	___	+	___	___	+	___	=	45
					___	+	___	=	52
					___	+	___	=	39
					___	+	___	=	61
					___	+	___	=	32

1.01.21 ORDER NUMERALS FROM 51 THROUGH 99

(3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

*1.01.21.01A count and write by ones from 51 through 99 in correct counting order;
e.g.,

51,52,53,54,... 99

1.01.21.02B identify the numeral that comes one after a given numeral (51 through 99);
e.g.,

$86 \quad \boxed{87}$

1.01.21.03B identify the numeral that comes one before a given numeral (51 through 99);
e.g.,

$\boxed{70} \quad 71$

1.01.21.04B identify the numeral that comes between two given numerals.
e.g.,

$76 \quad \boxed{77} \quad 78$

VOCABULARY

TERMS

before
after
between
one more than
one less than

GETTING STARTED

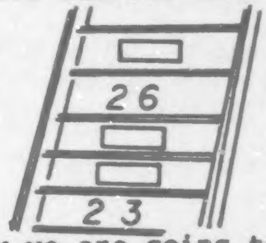
Prepare a number chart with the numbers one through fifty and a set of cards numbered 20 through 50. Display the number chart. Point to various numbers on the chart and ask the students to name the number. Distribute one numeral card to each student. Say, "I am going to recite a number riddle. If you have the number I am talking about, hold up your card and say the number. Here's the first riddle. My number is one more than 24. What is my number?"

Repeat this procedure using the terms between, before, after, one more than and one less than.

For additional reinforcement collect all numeral cards from the students in correct counting order.

Draw several ladders on the chalkboard. Each ladder will order a group of five numbers from 1 through 50.

e.g.,



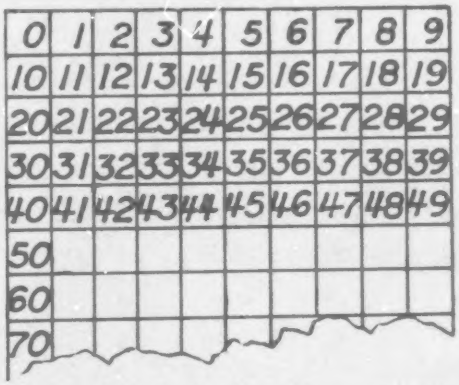
Say, "Today we are going to climb some steps. Let's look at the first ladder. On which step did we start? (23) What number comes next?" Ask a student to write the missing number (24) in the appropriate space on the ladder.

Repeat this procedure until all steps have been completed. Ask individual students to repeat the numbers on each ladder in the correct counting order.

1.01.21

1.01.21.01 **count and write by ones from 51 through 99 in correct counting order**

STRATEGY 1: Prepare and display an oaktag number chart. Distribute a rexographed chart to each student containing the numerals 0 through 50, 60, 70, 80 and 90.



0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50									
60									
70									

Point to each numeral (0 through 50) and ask the students to repeat the name of each numeral. Say, "Let's count by tens starting from fifty. We will circle the numerals 50, 60, 70, 80 and 90 as we name them." Demonstrate on the chart. Say, "What is the first number you circled? (fifty) What number do you think comes next?" (fifty-one) Write 51 on the chart and ask the students to do the same on their sheets.

Repeat this procedure through 99. After the chart has been completed review the numerals 51 through 99. Ask the students to read each number in the correct counting order.

STRATEGY 2: Prepare and display a number line with the numerals 1 through 50 and bundles of ten sticks or straws. Ask the students to count through 50 in the correct counting order. When the students reach the number ten place a bundle of 10 straws on the chalkboard ledge. Add another bundle for each multiple of ten. (through 50) Say, "Now we have fifty straws.

STRATEGY 2: cont'd

If I add another straw how many will I have?" (Demonstrate.) Ask the students to repeat fifty-one as you write the numeral 51 on the number line. Students may write the numeral in their notebooks.

Repeat this procedure for other numbers through 99.

1.01.21.02 **identify the numeral that comes one after a given numeral (51 through 99)**

STRATEGY 1: Prepare and display a number line (51-99) on the chalkboard. Randomly omit numerals on the number line. Say, "There are many numbers missing on the number line. Let's see if we can fill them in." Point to a numeral, e.g., 57, and say, "What number is this? What number comes one after 57?" Ask a student to come to the number line and write the correct numeral in the blank space.

Continue this procedure until all spaces on the number line have been completed.

STRATEGY 2: Prepare and distribute oaktag numeral cards in the shape of a fish for the numerals 51 through 99. Distribute two cards to each student. Say, "Today we are all going fishing. Who caught fish number 55? Place that fish on the ledge of the chalkboard. Who has the fish that comes one after 55?" Ask the student to place fish number 56 in the correct place.

Continue this procedure with other numerals through 99.

1.01.21.03 **identify the numeral that comes one before a given numeral (51 through 99)**

STRATEGY 1: Prepare and display a number chart (0 through 99). Prepare a set of cards numbered 51 through 99. Point to the number chart and ask the students to read the numbers (51 through 99) in the correct counting order.

Distribute two cards to each student. Write a numeral on the chalkboard, eg., 74, and say, "What is the numeral? Who has the card that comes one before 74?" Ask that student to tape that numeral card on the chalkboard in the correct place.

Continue this procedure with other numerals through 99.

STRATEGY 2: Prepare and display a number line (51 through 99). Ask the students to look at the number line. Say, "Read the numerals (51 through 99) in the correct counting order." Point to any numeral, e.g., 62, and say, "What number is this? If I jump back one number, on what number will I land? (61) We can say that 61 comes one before 62." Continue this procedure with other numbers.

1.01.21.04 **identify the numeral that comes between two given numerals (51 through 99)**

STRATEGY 1: Prepare and display a set of cards numbered 51 through 99. Ask two students to come to the front of the room and stand next to one another. Ask a third student to stand between them. Ask each student to identify their position, e.g., first, second, third (or last). Say, "The person in the second position is in the middle between the other two students." Distribute a numeral card to the first student and one to the last student, e.g., 84 and 86. Ask the students to say the name of the numeral they are holding. Say, "Which numeral card should go between the two cards the students are holding? Why?" Ask the student who responded to find the numeral card from the display of cards on the chalkboard ledge and give it to the student who is standing between the others.

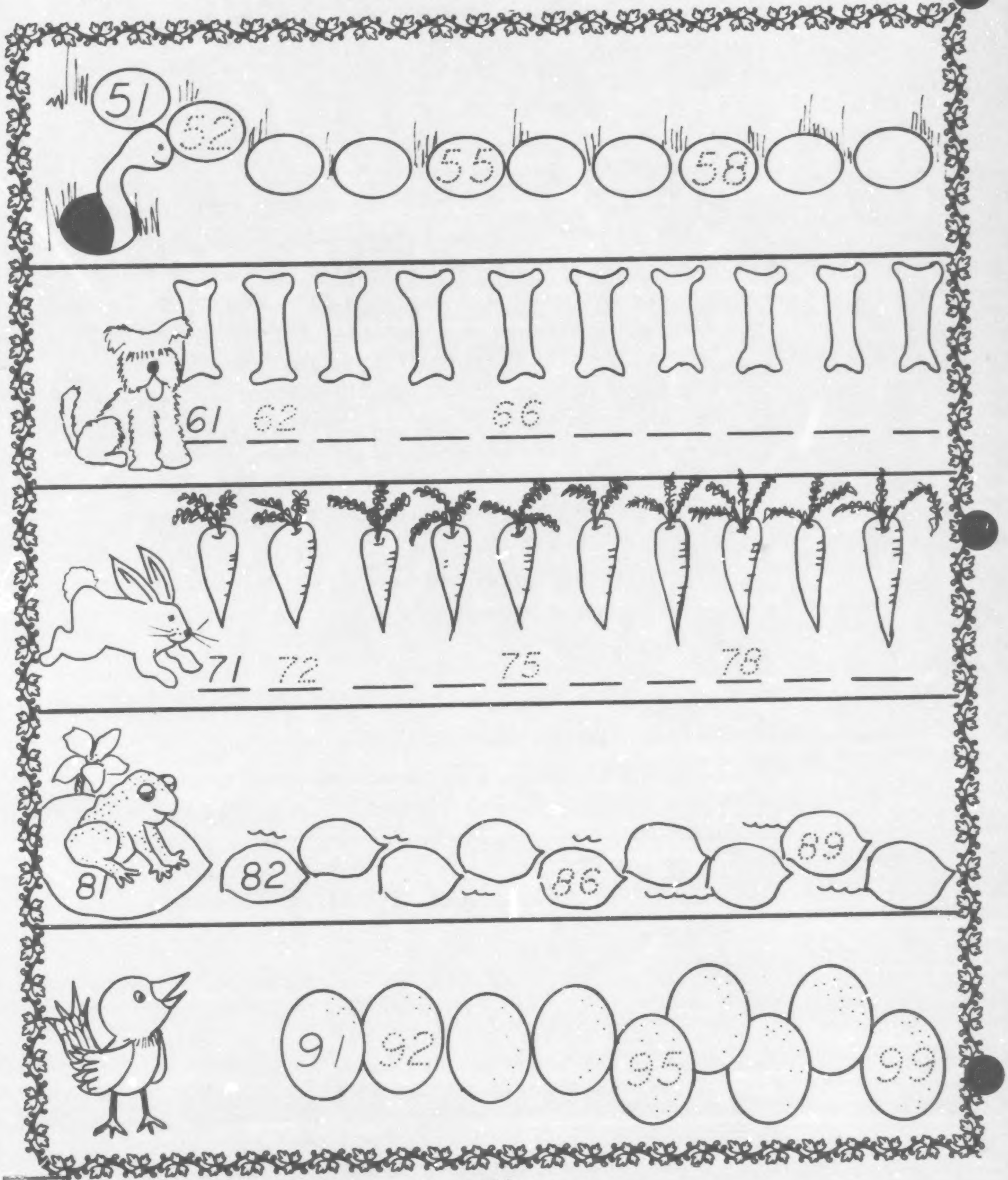
Repeat this procedure with other participants using other numerals.

STRATEGY 2: Prepare and distribute a set of cards numbered 51 through 99. Distribute two cards to each student. Say, "I will name two numerals. If you have the card with the numeral that comes between them, hold it up and tell us its name. The numeral I am thinking of comes between 55 and 57. Who has my numeral?" Name two new numerals and continue the game.

P.O. 1.01.21.01

NAME: ______________________ CLASS: __________ DATE: ________

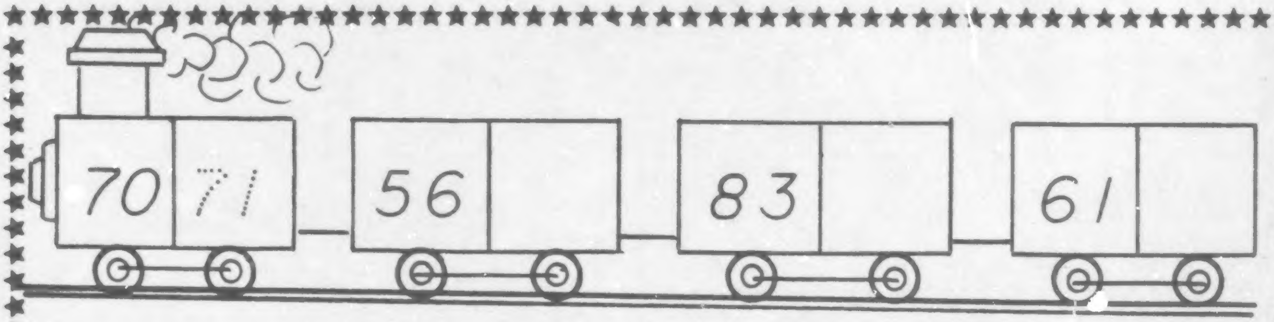
Fill in the missing numerals in counting order.

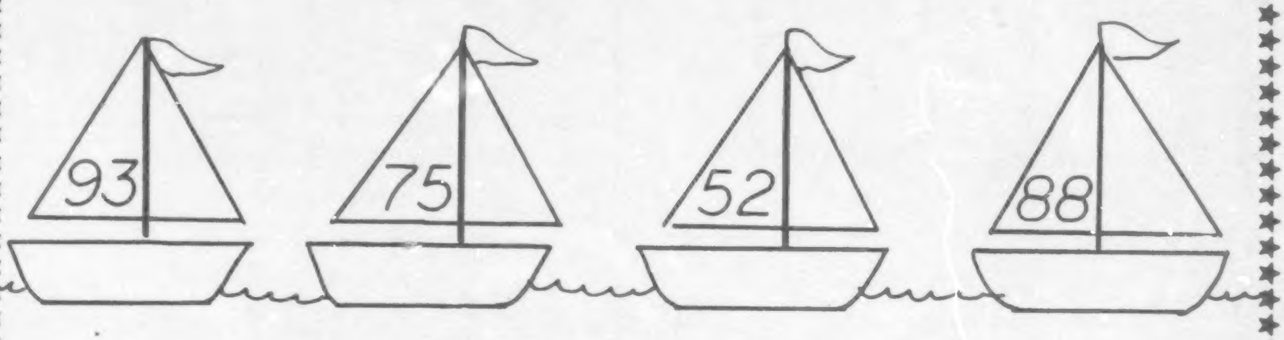

51
52
55
58
61
62
66
71
72
75
78
81
82
86
89
91
92
95
99

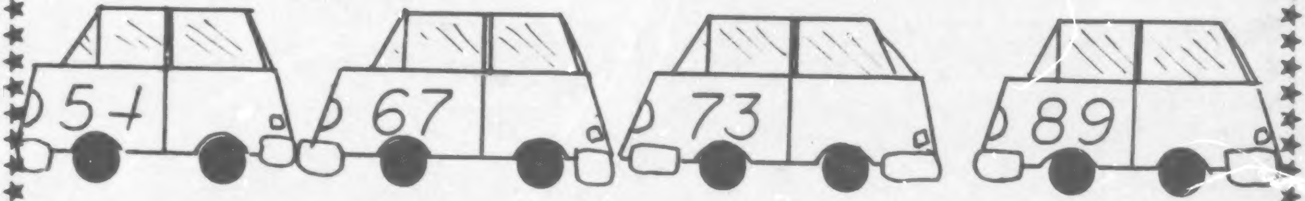
P.O. 1.01.21.02

NAME: ______________________________ CLASS: __________ DATE: ________

Fill in each space with the numeral that comes after the given numeral.


70
71
56
83
61





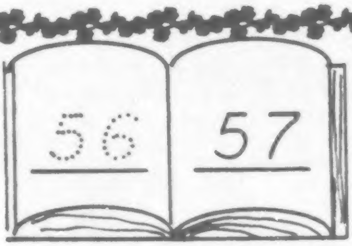
82, ____ 95, ____ 74, ____

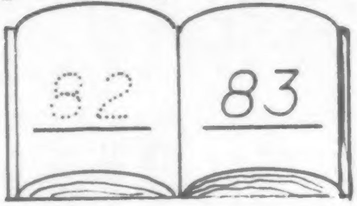
66, ____ 50, ____ 98, ____

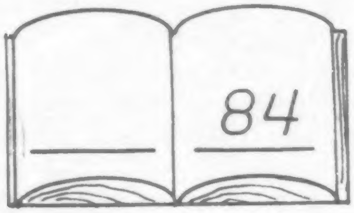
P.O. 1.01.21.03

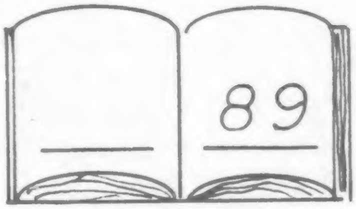
NAME: ______________________ CLASS: ________ DATE: ________

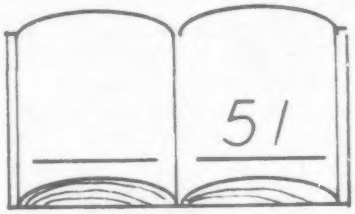
Write the page number that comes one before the page shown.

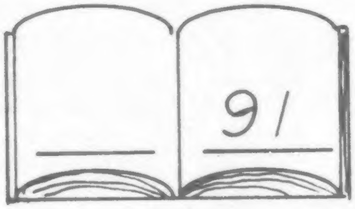


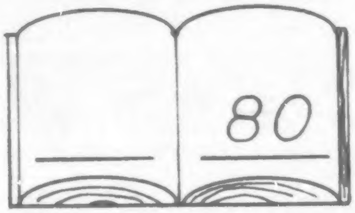


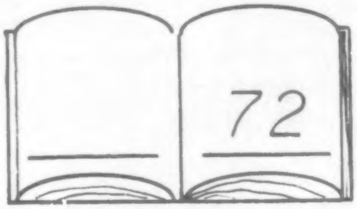


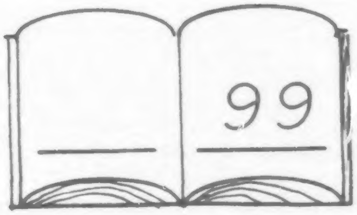


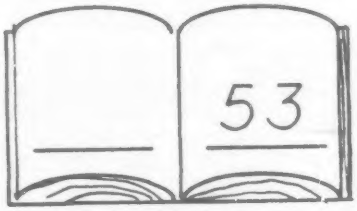












P.O. 1.01.21.04

NAME:________________________CLASS:__________DATE:________

Write the numeral that comes between the two given numerals.

ⓐ 56 57 58

ⓑ 71 ___ 73

ⓒ 93 ___ 95

ⓓ 60 ___ 62

ⓔ 88 ___ 90

ⓕ 76, ___, 78

ⓖ 53, ___, 55

ⓗ 97, ___, 99

ⓘ 79, ___, 81

1.02.07 ADD 2-DIGIT NUMBERS

(3-5 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

1.02.07.01A add a 2-digit number and a 1-digit number without exchange in horizontal and vertical formats;

e.g.,

$10 + 3 = 13$

$23 + 5 = 28$

$$\begin{array}{r} 10 \\ +3 \\ \hline 13 \end{array} \qquad \begin{array}{r} 23 \\ +5 \\ \hline 28 \end{array}$$

1.02.07.02A add multiples of ten;

e.g.,

$$\begin{array}{r} 20 \\ +10 \\ \hline 30 \end{array} \qquad \begin{array}{r} 30 \\ +20 \\ \hline 50 \end{array}$$

1.02.07.03A add two 2-digit numbers without exchange;

e.g.,

$$\begin{array}{r} 12 \\ +13 \\ \hline 25 \end{array} \qquad \begin{array}{r} 24 \\ +35 \\ \hline 59 \end{array}$$

1.02.07.04A solve story problems related to skills learned in this module.

e.g.,

Johnny had 10 baseball cards. He bought 12 more baseball cards. How many baseball cards does Johnny have now?

Johnny now has 22 baseball cards.

$$\begin{array}{r} 10 \\ +12 \\ \hline 22 \end{array}$$

1.02.07

VOCABULARY

TERMS

tens
groups
ones
digit
two-digit number
column

GETTING STARTED

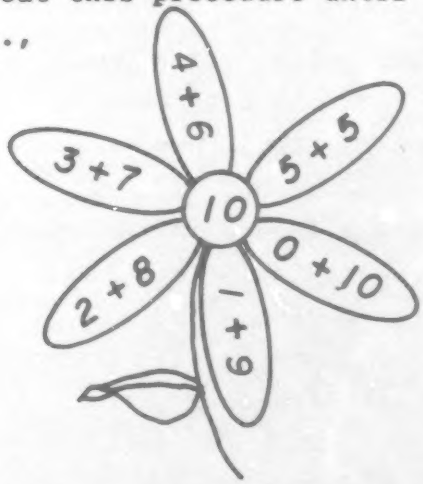
Prepare a set of addition fact cards, sums through 18. Place them face down on a table. Organize the class into two teams.

Say, "Each team member will be given a chance to win a point for his/her team. Each correct answer is worth one point. The first team to reach twenty points will win the game."

Prepare and distribute ten counters to each student. Draw a large flower on the chalkboard. Say, "We are going to complete the petals on the flower by writing the number facts for ten." Write 4 + 6 = 10 in a petal and say, "Four plus six equals ten. There are four birds sitting on a flower. Six more birds came along. Now there are ten. What is another number fact for ten?" Ask the students to separate their counters into two groups to find other number facts for ten. Write 5 + 5 on a flower petal. Ask the students to tell a short number story about this combination.

Repeat this procedure until the flower petals are filled.

e.g.,



1.02.07

1.02.07.01 **add a 2-digit and a 1-digit number without exchange in horizontal and vertical formats**

STRATEGY 1: Prepare and distribute squared material (tens and ones), a piece of construction paper and a place value chart to each student. Use larger squared material for demonstration. Say, "How many ones do you need to make a ten stick? (Demonstrate putting 10 ones together to make 1 ten stick.) We will call this long stick one ten because it is the same as 10 ones. You may only use a ten stick in the tens place."

Write 15 + 4 on the chalkboard. Say, "What is the first addend? Fifteen means 1 ten and 5 ones. Place 1 ten stick in the tens place and 5 ones in the ones place to show 15. What number should we add to 15? (4) Four means 4 ones. Put four ones in the ones place on your chart. We always add the ones place first. (Demonstrate pushing the ones together.) How much is 5 + 4? We will write 9 below the ones place. Now look at the tens place. How much is 1 ten + 0 tens? We will write 1 below the tens place. How much is 15 + 4? What other way can we write this number sentence?"

Repeat this procedure using other numbers in both horizontal and vertical formats.

STRATEGY 2: Prepare and display a large place value pocket chart and cards for the numerals 0 through 9. Write $\begin{array}{r} 41 \\ +\ 6 \\ \hline \end{array}$ on the chalkboard. Say, "How many tens and how many ones are in the number 41?" Place a 4 card in the tens place and a 1 card in the ones place. Say, "What will we add to 4 tens and 1 one? What does 6 mean? (6 ones) Why?" Place a 6 card in the ones place below the 1 from the 41. Say, "When we add, we always begin with the ones place. How

STRATEGY 2: cont'd

much is 1 + 6?" Write 7 below the line in the ones place and place a 7 card in the place value chart. Say, "Now we go to the tens place. How much are 4 tens + 0 tens?" Write a 4 below the line in the tens place and place a 4 card in the place value chart. Say, "What is the sum? (47) How many tens and ones are in 47?" (4 tens and 7 ones) Ask a student to show the number sentence in horizontal format. Repeat this procedure using other addends in both horizontal and vertical formats.

1.02.07.02 add multiples of 10

STRATEGY 1:

Prepare and distribute 90 ice cream sticks and nine rubber bands to groups of students. Ask the students to count and bundle groups of ten sticks. Say, "Put all of the bundles on one desk." Ask one of the students from each group to place three bundles of sticks on one side of his/her desk. Ask another student to place two bundles of sticks on his/her desk. Say, "What number sentence can we write to find the total number of sticks in both groups?" Ask a student to copy the number sentence written on the chalkboard.

e.g.,

$$\begin{array}{r} 30 \\ \underline{+20} \end{array}$$

Say, "Put the two groups of sticks together and count by tens to see how many sticks we have in all. How many sticks are in the two groups? (50) How much is 30 plus 20?" (50)

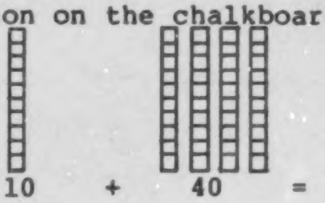
Repeat this procedure with other multiples of 10 whose sum does not exceed 90.

1.02.07

STRATEGY 2: Prepare and distribute squared material (ten strips) to each student.

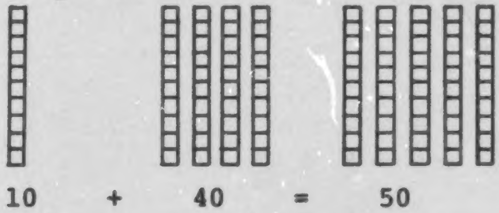
Write the example 10 + 40 on the chalkboard. Ask the students to show a group of 10 and a group of 40 using the squared materials. Draw the representation on the chalkboard.

e.g.,



Say, "Put the two groups of strips together. Let's count by tens to see how many we have in all. Ten, twenty, thirty, forty, fifty. How much is 10 plus 40?" (50) Complete the number sentence at the chalkboard.

e.g.,



Repeat this procedure with other multiples of ten whose sum does not exceed 90.

1.02.07.03 **add two 2-digit numbers without exchange**

STRATEGY 1: Prepare and distribute squared material (tens and ones) and a place value chart to each student. Write the following example on the chalkboard.

e.g.,

TENS	ONES
2	4
+1	3

Say, "What is the first addend? How many tens and how many ones are in 24?" Place 2 ten sticks and 4

STRATEGY 1: cont'd unit pieces in the place value chart. Repeat the procedure for 13. Say, "What numbers should we add first? How much is 4 + 3?" Write 7 in the ones place. Say, "We add the tens sticks next. How much are 2 ten sticks plus 1 ten stick?" Write 3 in the tens place. Say, "How much is 24 + 13? How many tens and how many ones are in 37?"

Repeat this procedure with other 2-digit addends.

STRATEGY 2: Prepare and distribute two milk containers labeled "Tens" and "Ones", sticks and rubber bands to each student. Show the students how to bundle ten sticks. Write the numeral 26 on the chalkboard. Say, "We are going to put twenty-six sticks in our containers. How many bundles of ten will we use? How many ones?" Write + 12 on the chalkboard. Say, "We have to add twelve more sticks. How many tens should we put in the tens container? (one) How many sticks should we put in the ones container? (2) How many sticks do we now have? How many ones? How many tens? What is the sum of 26 + 12?" Write 38 on the chalkboard.

Repeat this procedure using other two 2-digit numbers.

1.02.07.04 **solve story problems related to skills learned in this module.**

STRATEGY 1: Prepare and display story problems on experience chart paper.

e.g.,

John has 14 cars.
His father gave him 3 more cars.
How many cars does he have altogether?

STRATEGY 1:
cont'd

Ask the students to read the problem. Say, "Let's read the problem again. What do we know about John? Let's think about how we can find the number of cars John has altogether. What numbers will we write? What will we do with the numbers?" Write $\begin{array}{r}14\\+\ 3\\\hline 17\end{array}$ on the chalkboard.

Say, "John has 17 cars altogether." Repeat this procedure with other story problems.

STRATEGY 2:

Prepare and display an attendance chart. Use numbers which do not involve exchange or regrouping.

e.g.

	M	T	W	Th	F
Boys	12	14	10	13	14
Girls	16	11	17	12	13
Total					

Say, "How many boys were present on Monday? How many girls were present on Monday? If we want to find out how many boys and girls were present on Monday, what will we do?" Write $\begin{array}{r}12\\+16\\\hline\end{array}$ on the chalkboard. Elicit the correct response from the students and write it in the total column for Monday.

Repeat this procedure for the remaining days of the week.

P.O. 1.02.07.01

NAME: ________________________ CLASS: __________ DATE: ________

Add down or across.

$$\begin{array}{r} 10 \\ +\ \ 3 \\ \hline 13 \end{array} \qquad \begin{array}{r} 22 \\ +\ \ 6 \\ \hline \end{array} \qquad \begin{array}{r} 32 \\ +\ \ 5 \\ \hline \end{array}$$

$$\begin{array}{r} 24 \\ +\ \ 4 \\ \hline \end{array} \qquad \begin{array}{r} 43 \\ +\ \ 2 \\ \hline \end{array} \qquad \begin{array}{r} 15 \\ +\ \ 4 \\ \hline \end{array}$$

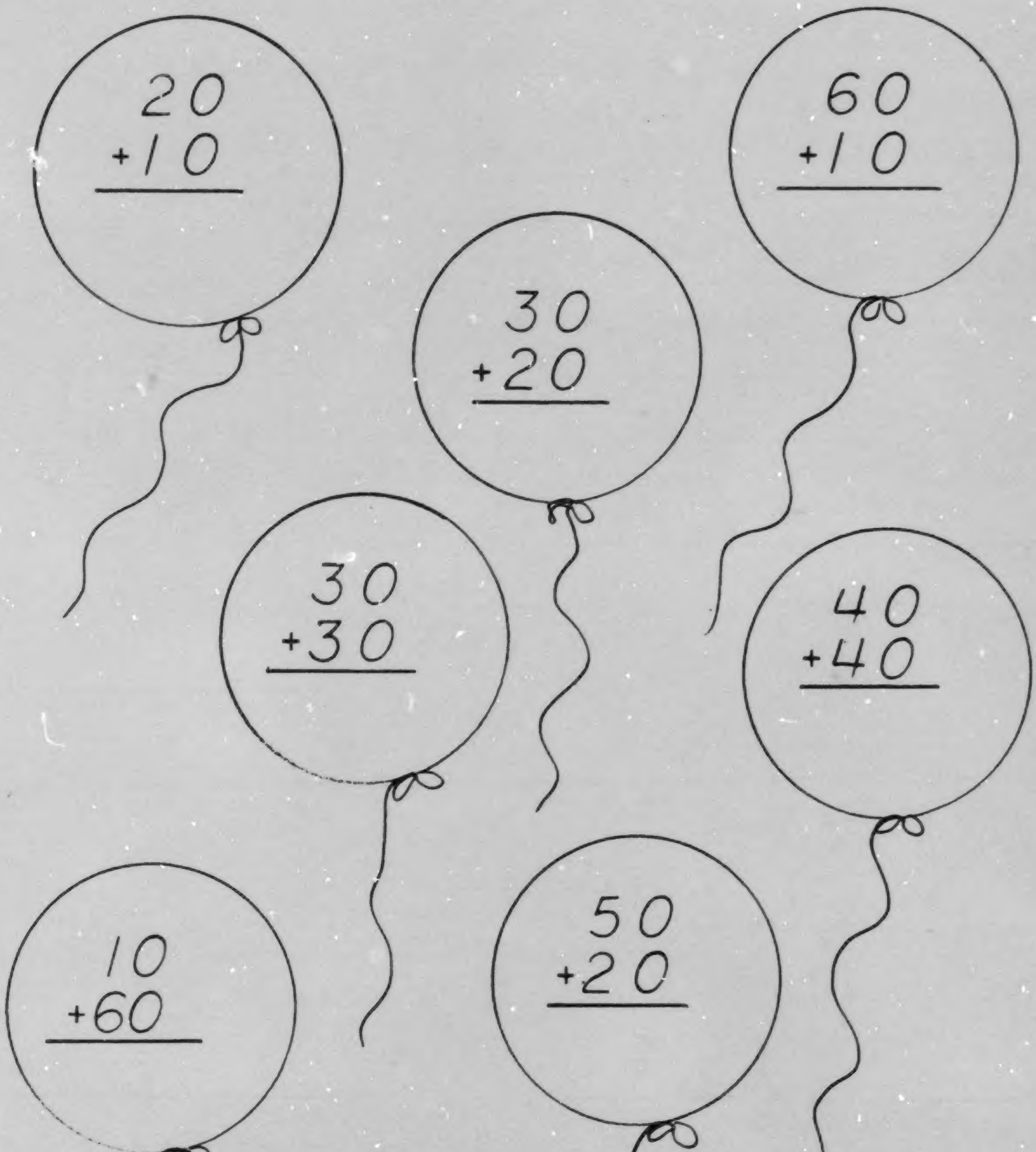
$11 + 6 = \boxed{17}$ $\qquad 13 + 5 = \boxed{}$

$24 + 3 = \boxed{}$ $\qquad 32 + 6 = \boxed{}$

P.O. 1.02.07.02

NAME: ______________________________ CLASS: __________ DATE: ________

Find the sums.



$$\begin{array}{r} 20 \\ +10 \\ \hline \end{array}$$

$$\begin{array}{r} 60 \\ +10 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ +20 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ +30 \\ \hline \end{array}$$

$$\begin{array}{r} 40 \\ +40 \\ \hline \end{array}$$

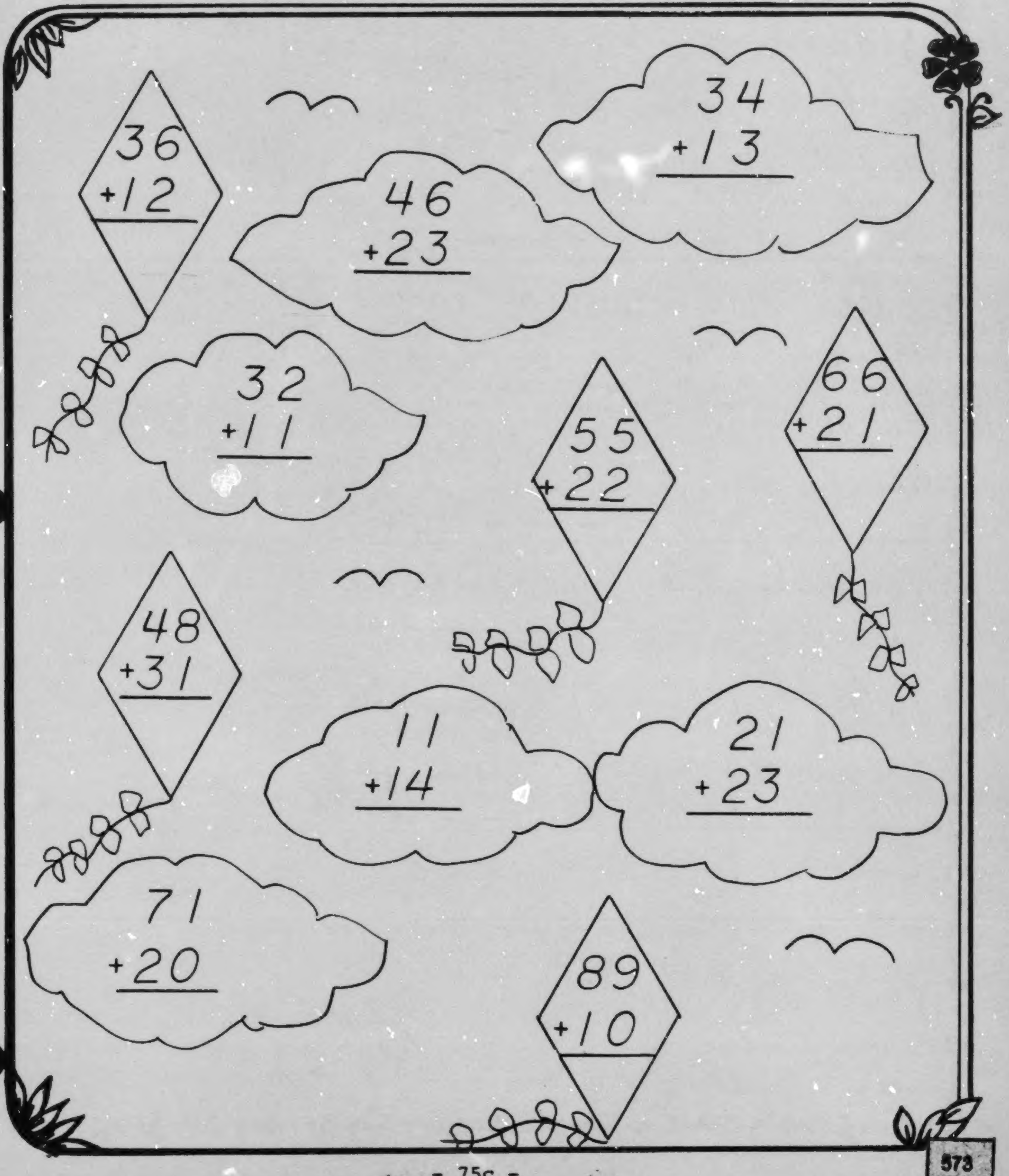
$$\begin{array}{r} 10 \\ +60 \\ \hline \end{array}$$

$$\begin{array}{r} 50 \\ +20 \\ \hline \end{array}$$

P.O. 1.02.07.03

NAME: ______________________ CLASS: __________ DATE: ________

Fly high. Add the numbers.



36
+12

34
+13

46
+23

32
+11

66
+21

55
+22

48
+31

11
+14

21
+23

71
+20

89
+10

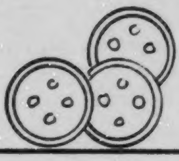
P.Q. 1.02.07.04

NAME: ______________________ CLASS: __________ DATE: ________

Solve each story problem. Write the example.

Work Space

Mary had 22 buttons. Jane had 34 buttons. How many did both girls have?



____

Jack had 31 baseball cards. Mark gave him 42 baseball cards. How many did Jack have then?

____

There were 30 books on the top shelf. The teacher put 20 books on the bottom shelf. How many books were on both shelves?

____

Mother made 12 doughnuts. Sister made 4 doughnuts. How many did they make in all?

____

Unit 66

1.03.07 SUBTRACT A 1-DIGIT NUMBER FROM 11 THROUGH 18

(3-4 lessons)

PERFORMANCE OBJECTIVES

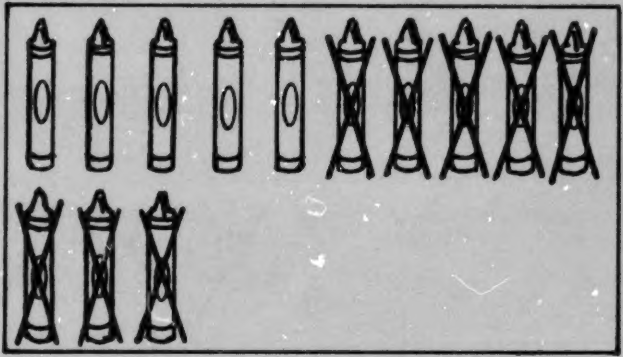
The student will be able to...

1.03.07.01B subtract a 1-digit number from 11 through 18 where the difference will be 2 through 9;

e.g.,

$$\begin{array}{r}13\\-8\\\hline 5\end{array}$$

13 - 8 = 5



1.03.07.02A identify related addition and subtraction facts for each number family through 18;

e.g.,

$9 + 5 = \boxed{15}$

$6 + 9 = 15$

$15 - 6 = 9$

$15 - 9 = 6$

$$\begin{array}{r}6\\+9\\\hline 15\end{array}\qquad\begin{array}{r}9\\+6\\\hline 15\end{array}\qquad\begin{array}{r}15\\-9\\\hline 6\end{array}\qquad\begin{array}{r}15\\-6\\\hline 9\end{array}$$

*1.03.07.03A check subtraction problems by using addition;

e.g.,

$8 - 3 = \boxed{5}$

check

$5 + 3 = 8$

1.03.07.04A solve story problems related to skills learned in this module.

e.g.,

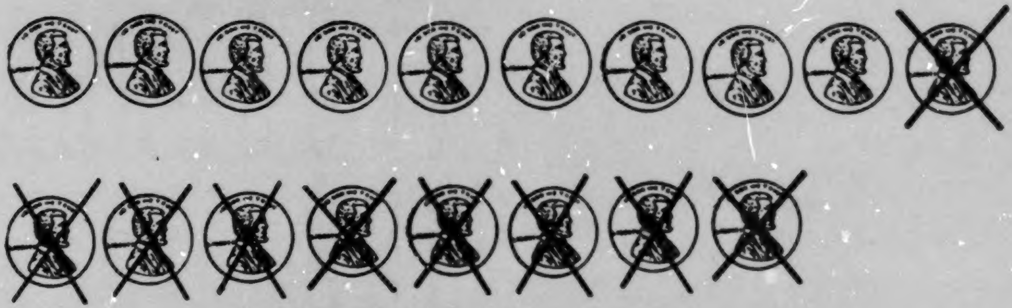
John went into the store with 18¢. He spent 9¢. How much money does he have now?

18¢ - 9¢ = 9¢

check

9¢ + 9¢ = 18¢

John has 9¢.



1.03.07

VOCABULARY

TERMS

subtraction
difference
check
take away

GETTING STARTED

Prepare and display subtraction flashcards with minuends through ten. Divide the class into two teams. Say, "We are going to have a subtraction contest. I will show you a card with a subtraction fact. If you answer correctly, go to the end of your line. If you are incorrect, please sit down. The team with the most students standing after two rounds wins."

Say, "I am thinking of a number family. The family is 5. Can you think of all the members in the family?"

e.g.,

2 + 3
1 + 4
5 + 0
6 - 1
7 - 2
8 - 3
9 - 4
10 - 5

Continue this procedure for other number families.

1.03.07

1.03.07.01 **subtract a 1-digit number from 11 through 18 where the difference will be 2 through 9**

STRATEGY 1: Prepare and distribute eighteen chips to each student. Write a subtraction number sentence on the chalkboard, e.g., 12 - 4 = ☐. Say, "Look at the number sentence on the chalkboard. With how many chips must we begin? (12) Place twelve chips in a straight line on your desk. Take four away. How many are left? What number will we place in the box?" Write the difference in the box.

Repeat this procedure for other subtraction facts with minuends through 18.

STRATEGY 2: Prepare and distribute a piece of paper and eighteen discs to each student. Say, "Today we will be Little Red Riding Hoods delivering apples to Grandmother. Our discs will be apples and the piece of paper will be our basket. Put all your "apples" in your "basket". At the first stop Little Red Riding Hood bumped into a rose bush and dropped 3 apples. What shall we do?" (Take away three apples.) Ask a student to state the number sentence. Write 18 - 3 = ☐ on the chalkboard. Say, "How many apples are left?" Complete the example.

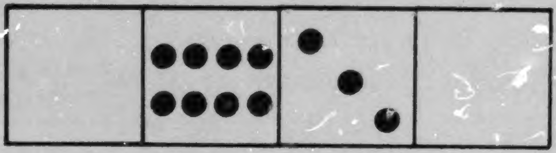
Continue this procedure for other number facts.

1.03.07.02 **identify related addition and subtraction facts for each number family through 18**

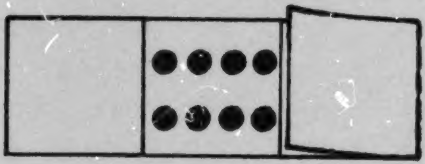
STRATEGY 1: Prepare and distribute six oaktag strips (11" x 4") and two crayons to each student. Fold each oaktag strip into fourths. Ask the students for an

STRATEGY 1:
cont'd

addition fact for eleven and write it on the chalkboard, e.g., 8 + 3 = 11. Say, "We will draw dot pictures for this fact on one of our strips. Lay one strip flat on your desk. Find the second section and draw eight dots. Find the third section and draw three dots." (Demonstrate.)
e.g.,



Ask the students to rotate the card to show the commutative addition fact (3 + 8). Write 3 + 8 on the chalkboard. Say, "We are going to use our addition card to help us subtract. Hold the card so that it shows eight plus three. How much is 8 + 3? We are going to take away three from eleven. Cover the three with the flap of your strip." (Demonstrate.)
e.g.,



Say, "How much is eleven take away three? What subtraction fact did we make? (11 - 3 = 8) Open up the flap. Now we will take eight away from eleven. Cover the eight with the flap on the left. How much is left? What subtraction fact did we make? (11 -8 = 3) Write the subtraction sentences on the chalkboard next to the related addition facts." Continue this procedure for other related addition and subtraction facts through eighteen.

1.03.07

STRATEGY 2: Prepare and distribute eighteen interlocking cubes to each student. Say, "We are going to show that subtraction and addition are related. Place eleven cubes on your desk. Separate the cubes into two groups." Ask the students to relate the sentence he/she made, e.g., (8 + 3 = 11, 6 + 5 = 11). Write these sentences on the chalkboard. Say, "With how many cubes did you begin? (11) Take away one group of cubes. How many are left?" Ask a student to relate the subtraction sentence he/she made. (11 - 3 = 8; 11 - 6 = 5) Write these sentences on the chalkboard under the related addition sentences.

Continue this procedure until all the related addition and subtraction facts for eleven through eighteen have been named.

1.03.07.03 **check subtraction problems by using addition**

STRATEGY 1: Ask eight students to line up in front of the classroom. Ask three of these students to move to the corner. Say, "How many students are left?" Ask a student to write the subtraction example that tells this story on the chalkboard. Say, "We can check to see if this number sentence is correct. There are five students in the front of the room. We will ask the three students to return to the front of the room. How many do we now have?" Ask a student to write the number sentence on the chalkboard under the word check.

e.g.,

$$\begin{array}{r} \\ 8 \\ -3 \\ \hline 5 \end{array} \qquad \begin{array}{c} \underline{\text{check}} \\ 5 \\ +3 \\ \hline 8 \end{array}$$

Repeat this procedure using other numbers (sums and minuends through eighteen).

STRATEGY 2: Prepare and distribute two empty pint-sized milk containers and eighteen discs (cubes or sticks) to each student. Say, "We are going to check our subtraction by using addition. We will take away and then put back together. Put eleven of your discs in one container. Take out six of the discs and put them in the other container. How many are left? (5) What subtraction sentence tells what you did? (11 - 6 = 5) With how many did you start? (11) How many did you take away? (6) Now put the six discs back into the first container. What addition sentence tells us what you did?" (5 + 6 = 11) Write the two sentences on the chalkboard. Say, "We can check our examples. Since we started out with eleven we want to end up with eleven. Did we end up with eleven? Then we know we are right." Continue with this procedure, selecting other number facts for eleven.

Repeat this activity for number facts through eighteen.

1.03.07.04 **solve story problems related to skills learned in this module**

STRATEGY 1: Prepare and distribute eighteen chips to each student. Say, "Listen to the stories. Then show the example that tells this story by using your chips. John had 8 cookies. He gave away 3. How many cookies does he have left? Check by adding the numbers together. Who can write the subtraction number sentence and the check on the chalkboard?" (8 - 3 = 5, check: 5 + 3 = 8) Repeat this procedure with other story problems.

1.03.07

STRATEGY 2: Prepare and distribute a sheet of paper to each student. Present oral story problems to the students and ask them to write related number sentences. Ask the students to decide whether it is an addition or subtraction story.

e.g.,

Judy had eleven turtles. She gave five to her sister. How many turtles does she have left?

(11 - 5 = 6)   (6 + 5 = 11)

John had twelve marbles. He lost three marbles. How many does he have left?

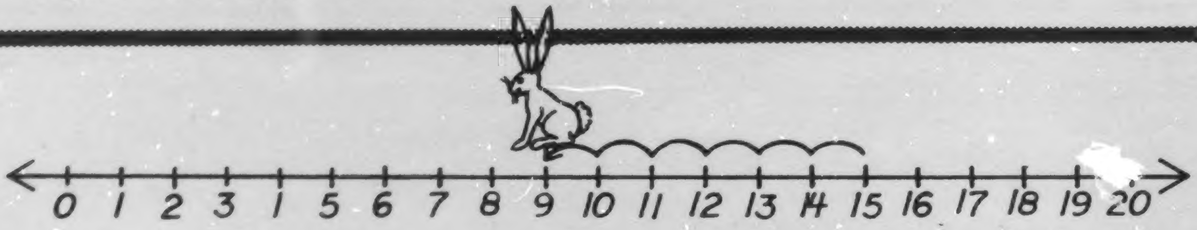
(12 - 3 = 9)   (9 + 3 = 12)

Students may use discs to help in solving the story problems. Write the sentences on the chalkboard as the students say them. Repeat this procedure varying the number facts through eighteen.

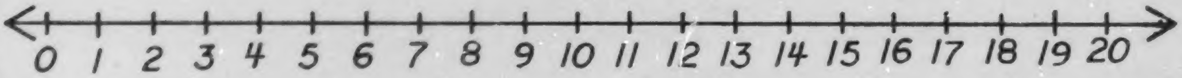
P.O. 1.03.07.01

NAME: ______________________ **CLASS:** ________ **DATE:** ______

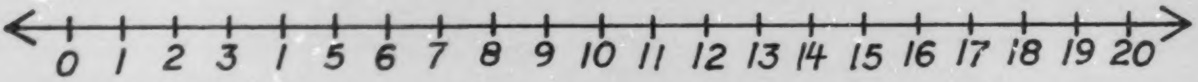
Make the hops along the number line.
Complete each subtraction fact.


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

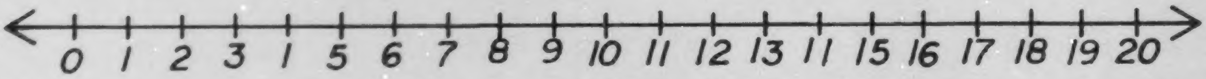
$\underline{15} - \underline{6} = \underline{9}$


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

15 − 9 = ___


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

13 − 4 = ___

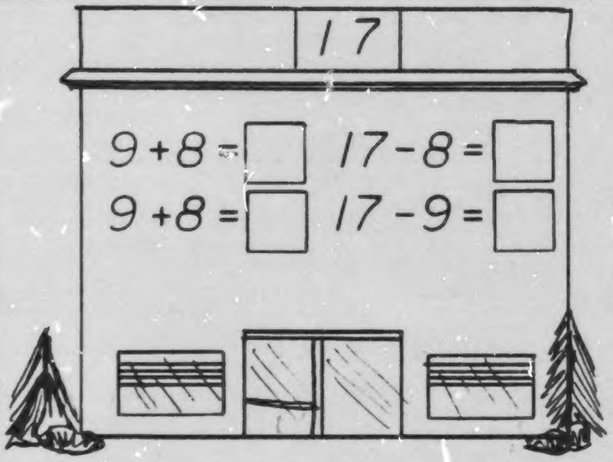

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

14 − 8 = ___

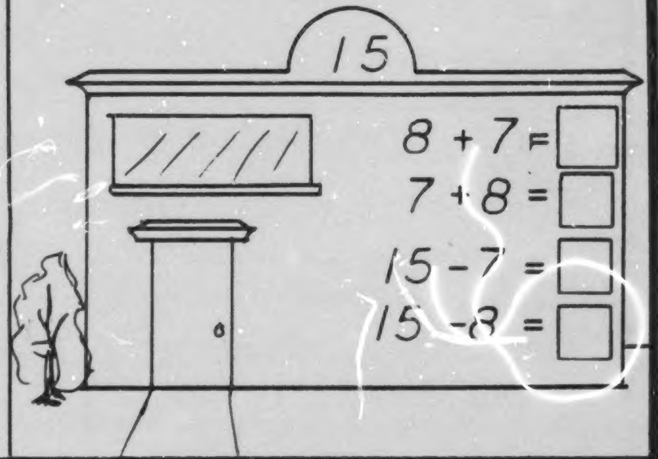
P.O. 1.03.07.02

NAME: ______________________ CLASS: ________ DATE: ________

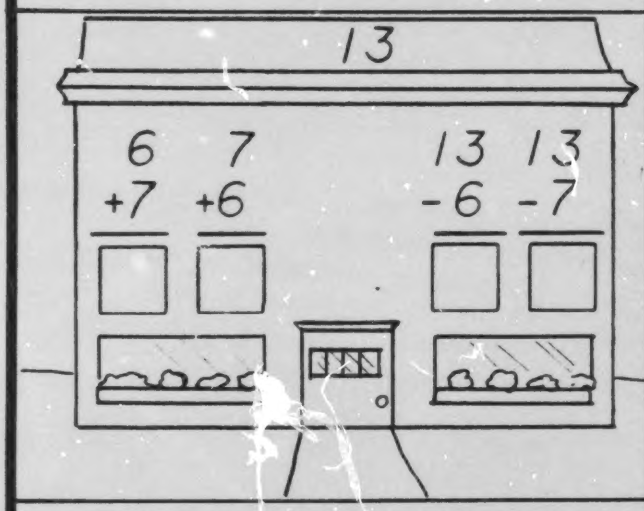
The numeral at the top of each house tells the number family that lives there. Put the numeral in the empty box in each house to make that number family complete.



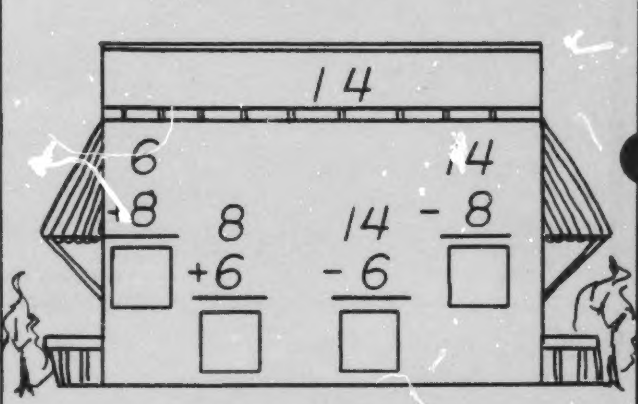
9 + 8 = 17 − 8 =
9 + 8 = 17 − 9 =



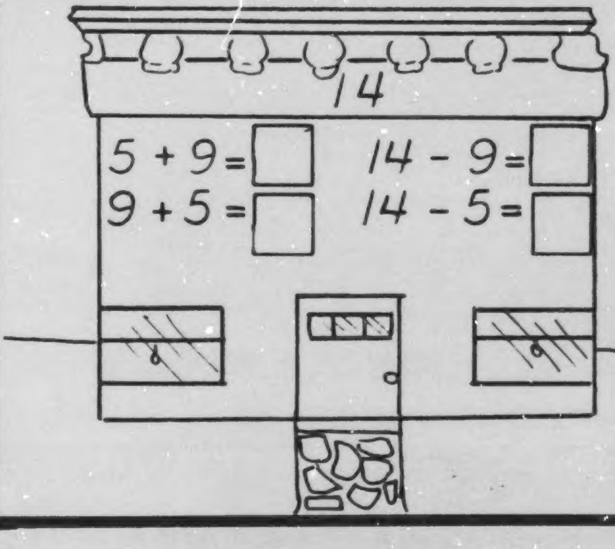
8 + 7 =
7 + 8 =
15 − 7 =
15 − 8 =



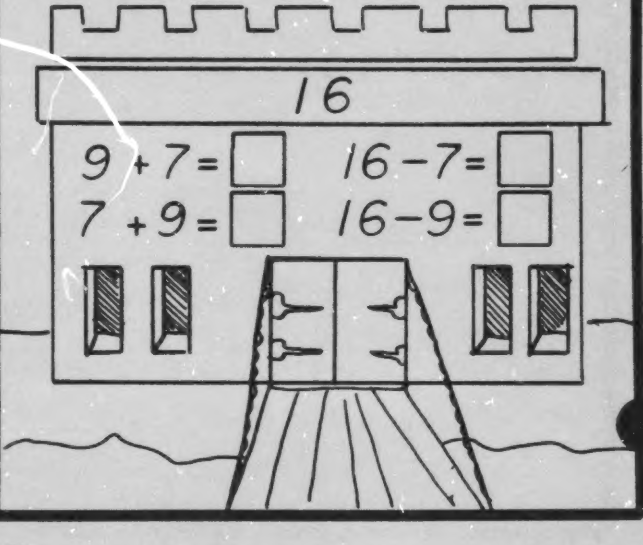
$$\begin{array}{r}6\\+7\\\hline\end{array}\quad\begin{array}{r}7\\+6\\\hline\end{array}\quad\begin{array}{r}13\\-6\\\hline\end{array}\quad\begin{array}{r}13\\-7\\\hline\end{array}$$



$$\begin{array}{r}6\\+8\\\hline\end{array}\quad\begin{array}{r}8\\+6\\\hline\end{array}\quad\begin{array}{r}14\\-6\\\hline\end{array}\quad\begin{array}{r}14\\-8\\\hline\end{array}$$



5 + 9 = 14 − 9 =
9 + 5 = 14 − 5 =



9 + 7 = 16 − 7 =
7 + 9 = 16 − 9 =

P.O. 1.03.07.03

NAME:______________________________ CLASS:__________ DATE:________

Solve each subtraction example.
Check each subtraction example by adding.

check

$$\begin{array}{r} 11 \\ -6 \\ \hline \boxed{5} \end{array} \qquad \begin{array}{r} \boxed{5} \\ +\boxed{6} \\ \hline \boxed{11} \end{array}$$

check

$$\begin{array}{r} 14 \\ -7 \\ \hline \boxed{} \end{array} \qquad \begin{array}{r} \boxed{} \\ +\boxed{} \\ \hline \boxed{} \end{array}$$

check

$$\begin{array}{r} 12 \\ -3 \\ \hline \boxed{} \end{array} \qquad \begin{array}{r} \boxed{} \\ +\boxed{} \\ \hline \boxed{} \end{array}$$

check

$$\begin{array}{r} 13 \\ -6 \\ \hline \boxed{} \end{array} \qquad \begin{array}{r} \boxed{} \\ +\boxed{} \\ \hline \boxed{} \end{array}$$

check

$$\begin{array}{r} 18 \\ -7 \\ \hline \boxed{} \end{array} \qquad \begin{array}{r} \boxed{} \\ +\boxed{} \\ \hline \boxed{} \end{array}$$

check

$$\begin{array}{r} 15 \\ -6 \\ \hline \boxed{} \end{array} \qquad \begin{array}{r} \boxed{} \\ +\boxed{} \\ \hline \boxed{} \end{array}$$

check

$$\begin{array}{r} 11 \\ -7 \\ \hline \boxed{} \end{array} \qquad \begin{array}{r} \boxed{} \\ +\boxed{} \\ \hline \boxed{} \end{array}$$

check

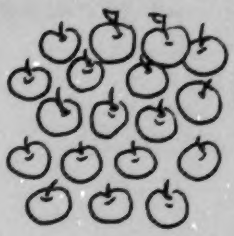
$$\begin{array}{r} 16 \\ -7 \\ \hline \boxed{} \end{array} \qquad \begin{array}{r} \boxed{} \\ +\boxed{} \\ \hline \boxed{} \end{array}$$

P.O. 1.03.07.04

NAME: ______________________ CLASS: ________ DATE: ________

Draw an X on the objects to be taken away.
Complete the number sentence for each picture story.
Check each answer.

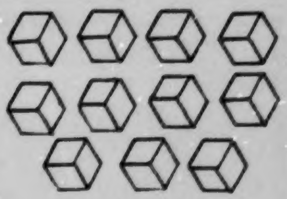
$18-9=\square$



check

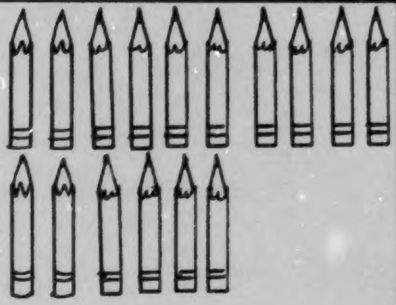
$9+\square=18$

$11-8=\square$



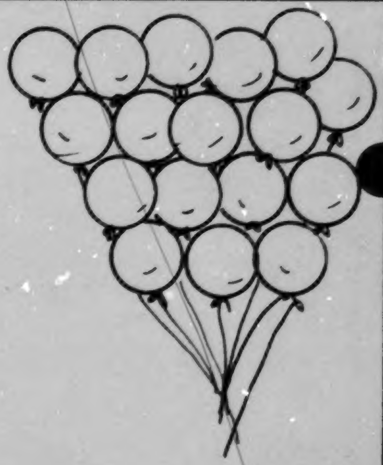
check

$$\begin{array}{r} 16 \\ -7 \\ \hline \end{array}$$



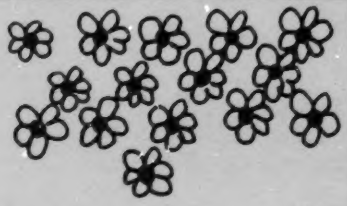
check

$$\begin{array}{r} 17 \\ -9 \\ \hline \end{array}$$



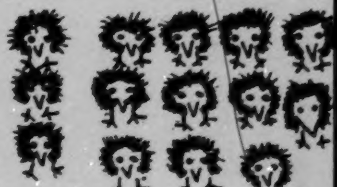
check

$$\begin{array}{r} 15 \\ -6 \\ \hline \end{array}$$



check

$$\begin{array}{r} 14 \\ -8 \\ \hline \end{array}$$



check

Unit 67

1.03.08 SUBTRACT A 1-DIGIT NUMBER FROM A 2-DIGIT NUMBER WITHOUT REGROUPING (EXCHANGE)

(3-5 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

1.03.08.01A subtract a 1-digit number from a 2-digit number without regrouping (exchange);

e.g.,

$$\begin{array}{r} 34 \\ -3 \\ \hline 31 \end{array}$$

1.03.08.02A check subtraction problems by using addition;

e.g.,

$$\begin{array}{rcr} & & \underline{\text{check}} \\ 28 & & 25 \\ -3 & & +3 \\ \hline 25 & & 28 \end{array}$$

*1.03.08.03A solve story problems related to skills learned in this module.

e.g.,

Jason had 48 granola bars to sell. He sold 6 bars. How many did he have left?

$$\begin{array}{rcr} & & \underline{\text{check}} \\ 48 & & 42 \\ -6 & & +6 \\ \hline 42 & & 48 \end{array}$$

Jason has 42 bars left.

1.03.08

VOCABULARY

TERMS

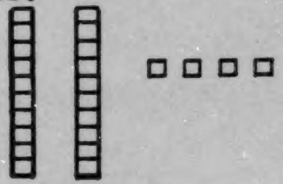
minus
tens
ones
difference
check

GETTING STARTED

Prepare and distribute squared material (3 tens and 9 units) to each student. Write ten 2-digit numerals on the chalkboard. Point to the first numeral, e.g., 24. Say, "Use your squared material to make this number."

Demonstrate modeling the number counting by tens using tens strips and ones pieces.

e.g.,

24 = 

Prepare two sets of flashcards, one set with addition facts and the other set with related subtraction facts.

e.g.,

4 + 3 = 7 7 - 3 = 4

Display the subtraction facts on the chalkboard ledge. Randomly display an addition fact. Ask a student to choose the related subtraction fact from the chalkboard ledge.

Continue this procedure until all of the facts have been matched.

1.03.08

1.03.08.01 **subtract a 1-digit number from a 2-digit number without regrouping (exchange)**

STRATEGY 1: Prepare and distribute squared material to each student. Write the following example on the chalkboard, $\begin{array}{r}35\\ -\ 3\\ \hline\end{array}$. Say, "How many ones are in the number 35? How many tens? Display 35 using your squared material. Look at the example on the chalkboard. What are we asked to subtract? (3 ones) Take away 3 ones. How many ones are left? (2) Let's look at the tens column. How many tens shall we take away? Why? How many tens do we still have? How much is thirty-five minus three?"

Repeat this procedure with other examples.

STRATEGY 2: Prepare and display squared material. Display 2 ten strips and 4 ones. Say, "What number does this represent?" Write $24 - 3 = \square$ on the chalkboard. Say, "How much are we going to subtract?" (3) Ask a student to take away 3 unit pieces. Say, "How many were taken away? (3) What is left?" (21)

Write the same example in vertical format on the chalkboard. Indicate the tens and ones columns.

e.g.,

Tens	Ones
2	4
-	3

Say, "Circle the numbers in the ones place? What must we subtract? (Subtract 3 from 4.) How many ones do we have left?" Ask a student to write 1 in the ones column. Say, "What number is in the tens column? What do we do with this number? (It remains the same.) Why?" (We did not take away any tens.) Ask another student to write 2 in the tens column. Say, "How much is twenty-four minus three?" (21).

Repeat this procedure with other examples.

1.03.08

1.03.08.02 check subtraction problems by using addition

STRATEGY 1: Prepare and distribute squared material and a sheet of paper to each student. Display two tens and eight ones on the chalkboard. Ask the students to use their squared material to display the same number on their sheet of paper. Say, "What number are we displaying with the squared material?" On the chalkboard draw a place value chart.

e.g.,

T	O

Say, "How many tens in twenty-eight?" Write the numeral 2 in the tens column. Say, "How many ones in twenty-eight?" Write the numeral 8 in the ones column.

Remove five ones from the demonstration model and place them on the side. Say, "What did I do? (took away five) Take away five ones from your squared material." Point to the 28. Say, "We started with 28. What sign do we need to show that something was taken away?" Write the minus sign. Say, "How much did we take away? In which column should we write the five? Why?" Write the subtraction algorithm. Say, "Let's see how many we have left. Count the ones on your paper. How many are there?" Write 3 in the ones column. Say, "Count your ten strips. How many tens do you have?" Write 2 in the tens column. Say, "Who can read the number sentence for us?" e.g.,

	T	O
	2	8
-		5
	2	3

Draw a new place value chart and put in the numeral 23.

e.g.,

T	O
2	3

Point to the original subtraction example and say, "How much did we take away? (5) Let's put the five

STRATEGY 1: cont'd

back. What sign do we use to show that we are adding? How many are we adding? Where will we write the five? e.g.,

	T	O
	2	3
+		5

Let's count all the ones on our paper. How many do we have?" Write the numeral 8 in the ones column. Say, "Let's count our tens. How many do we have?" Write the numeral 2 in the tens place."

e.g.,

	T	O
	2	3
+		5
	2	8

Compare the two number sentences. Say, "We started with twenty-eight, we took five away, we had twenty-three left. We put five back. We started with twenty-eight and we finished with twenty-eight. We used addition to check our subtraction."

e.g.,

	T	O
	2	8
-		5
	2	3

	T	O
	2	3
+		5
	2	8

Continue this procedure with other place value models.

STRATEGY 2: Write the following example on the chalkboard.

e.g.,

	T	O
	3	8
-		7
	3	1

Say, "I would like to check this example to see if it is correct." Point to the thirty-one in the example. Ask a student to come to the front and display thirty-one using place value material. Say, "Look at the example written on the chalkboard. Can you tell how much was taken away? What sign tells us something was taken away? To check the example we put back what was taken away. How much should we put back?" Write the following example on the chalkboard.

1.03.08

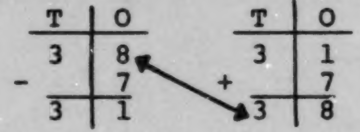
STRATEGY 2: cont'd

e.g.,

$$\begin{array}{r|l} T & O \\ \hline 3 & 1 \\ + \quad & 7 \\ \hline & \end{array}$$

Ask a student to complete the addition example on the chalkboard. Say, "What is the sum? Is it the same as the number we started with in our subtraction example?" Draw an arrow to show that the numbers are the same.

e.g.,



Say, "When these numbers match we know our subtraction example is correct." Ask the students to copy these examples in their notebooks. Continue this procedure with other examples.

1.03.08.03 **solve story problems related to skills learned in this module**

STRATEGY 1: Prepare and distribute squared material to each student. Say, "I will tell you a story. Use your material to act out the story." Ask a student to be the leader to demonstrate the story on the chalkboard. Say, "Nineteen apples were on a tree. I shook the tree so hard that seven apples fell down. How many apples are still on the tree?" Review each part of the story slowly so that the students can model the action. Ask a student leader to write the subtraction example on the chalkboard while the other students check their work. Continue with other problems, using different students as leaders.

1.03.08

STRATEGY 2: Write a subtraction example and its addition check on the chalkboard.

e.g.,

$$\begin{array}{rcr} & & \underline{\text{check}} \\ 19 & & 14 \\ \underline{-\ 5} & & \underline{+\ 5} \\ 14 & & 19 \end{array}$$

Tell a story about each example. Say, "Nineteen crayons were in a box. I used five of them. How many crayons are still in the box? Fourteen crayons are in a box. I put back the five crayons I used. How many crayons are in the box?" Ask the students to match the examples with the story told.

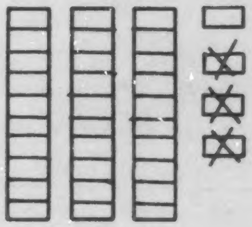
Repeat this procedure with other examples.

P.O. 1.03.08.01

NAME: ______________________ CLASS: ________ DATE: ________

Find the difference and write the examples.

Subtract



Tens	Ones
3	4
–	3
3	1

→

34
−3
31

Tens	Ones
4	7
–	5
4	2

→

47
−5
____

Tens	Ones
5	6
–	3

→

−
____

3	8
–	4

→

−
____

7	3
–	2

→

−
____

P.O. 1.03.08.02

NAME:__________ CLASS:__________ DATE:__________

Find the differences.   Find the sums.
Draw a line to the example that can be used to check the subtraction example.

58 −6 52	42 +5 ☐
65 −4 ☐	52 +6 58
29 −6 ☐	34 +2 ☐
47 −5 ☐	52 +3 ☐
36 −2 ☐	23 +6 ☐
55 −3 ☐	61 +4 ☐

P.O. 1.03.08.03

NAME:____________________ CLASS:________ DATE:________

Write the subtraction sentence. Solve the problem and check your answer.

Problem	Subtraction Sentence	Check
46 hats 5 sold How many left?	46 − 5 41	41 + 5 46
27 bicycles 4 rode away How many left?		
68 flowers 4 picked How many left?		
39 balloons 6 blew away How many left?		
32 rabbits 2 hopped away How many left?		

Unit 68

1.12.03 PROBABILITY - CHANCE EVENTS

(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

1.12.03.01B predict the likelihood of events happening;

e.g.,

Can we be certain that we will play in the playground after lunch today? How will we decide? Answers will vary depending upon weather conditions, class behavior, etc.

Can we be certain that you will select a red crayon from a box of crayons on your first try? Answers will vary depending upon number of red crayons in box, size of crayons, etc.

1.12.03.02B record the outcome of a chance event.

e.g.,

If we toss a coin 10 times, how many tosses will be heads and how many tails? Tally your results.

Heads	//////
Tails	///

1.12.03

VOCABULARY

TERMS

predict
facts
opinions
tally
likelihood
chance
real
not real

GETTING STARTED

Prepare two columns on the chalkboard, "Could Happen" and "Could Not Happen". Say, "We are going to decide which of the things I tell you about could really happen or could not really happen. A cow can fly. Can that really happen?"

List that statement in the appropriate column at the chalkboard. e.g.,

Could Happen	Could Not Happen
	A cow can fly.

Continue with other statements. e.g.,

A person can sing.
A vegetable can talk.
A boy can ride a bike.

Write simple statements on the chalkboard. Read the statements one at a time with the students. Ask the students to say "true" or "false" as each statement is read.

e.g.,

John is the tallest boy in our class.
Mary has red hair.
A calendar is near the door.
2 + 4 = 6
We go to lunch at 12:00 noon.
2 + 1 = 4

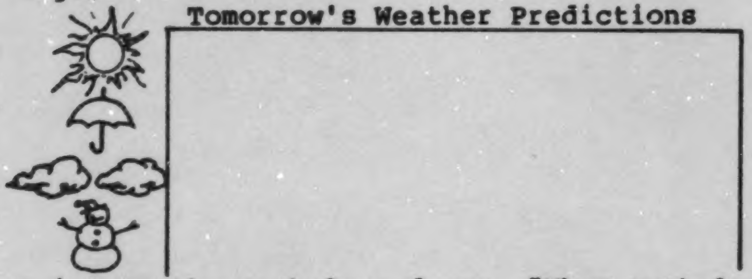
Variation: Point to the false statements and say, "How can we change these statements to make them true?" Encourage use of the word "not", e.g., "Mary does not have red hair."

1.12.03

1.12.03.01 **predict the likelihood of events happening**

STRATEGY 1: Say, "Who knows what a weather forecaster does? Today we will all be weather forecasters . We are going to guess or predict what tomorrow's weather will be. First we have to make a chart." Prepare the following chart:

e.g.,

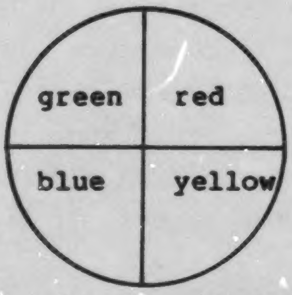


Point to the symbols and say, "What symbols do you see in this column? (a sun, an umbrella, clouds, snowman) What does each one represent? Ask each student to come up and place a tally mark in the row which contains the symbol of his/her prediction. Count the tally marks and write the totals in the last column. Review the total number of predictions made for each symbol.

The following day, review the predictions. Say, "Which students made the correct prediction? How did they make that prediction?"

STRATEGY 2: Prepare and display the following spinner:

e.g.,



Say, "If we spin the spinner where do you think it will point? Is there another color to which it might point? Any other?" Write the names of each

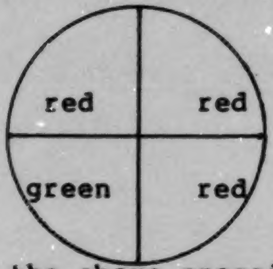
1.12.03

STRATEGY 2: cont'd

of the colors on the chalkboard. Say, "To how many colors could the spinner point? Do you think it might stop on green next time?" Call on several students to take turns spinning and record their spin on the chalkboard.

Prepare and display another spinner.

e.g.,



Repeat the above procedure with the second spinner. Say, "Which color did the second spinner land on most often? Why?"

1.12.03.02 **record the outcome of a chance event**

STRATEGY 1: Duplicate and distribute the following chart to each student.

e.g.,

Red	Blue

Prepare and distribute one red cube, one blue cube and a paper bag to each pair of students. Say, "Please put both blocks inside the bag. Write your name on your chart. Each of you will have ten turns to shake the bag of blocks and then let your partner pick a block from the bag. When it is your turn to pick, place a tally mark in the column labeled red each time you pick a red block. If you pick a blue block, place a tally mark in the column labeled blue. When you have finished, count the number of tally marks in each column. Write the number under your tally marks

STRATEGY 1: cont'd to show how many times you picked a red block and how many times you picked a blue block."

e.g.,

Juan		Tanya	
Red	Blue	Red	Blue
////	//////	///////	///
4	6	7	3

STRATEGY 2: Prepare and distribute a penny and a rexographed tally sheet to each of the students.

e.g.,

NAME

HEADS	
TAILS	

Say, "Today we are going to find out how many times a penny shows heads or tails if we toss it 10 times." Ask the students to write their names on the tally sheet. Say, "One student is going to toss the penny. If it shows heads, your partner will place a mark in the row marked HEADS. After you have tossed the penny 10 times change jobs with your partner." Ask the students to total the results.

Compare the recordings made by several groups.

P.O. 1.12.03.01

NAME: ____________________ CLASS: __________ DATE: ________

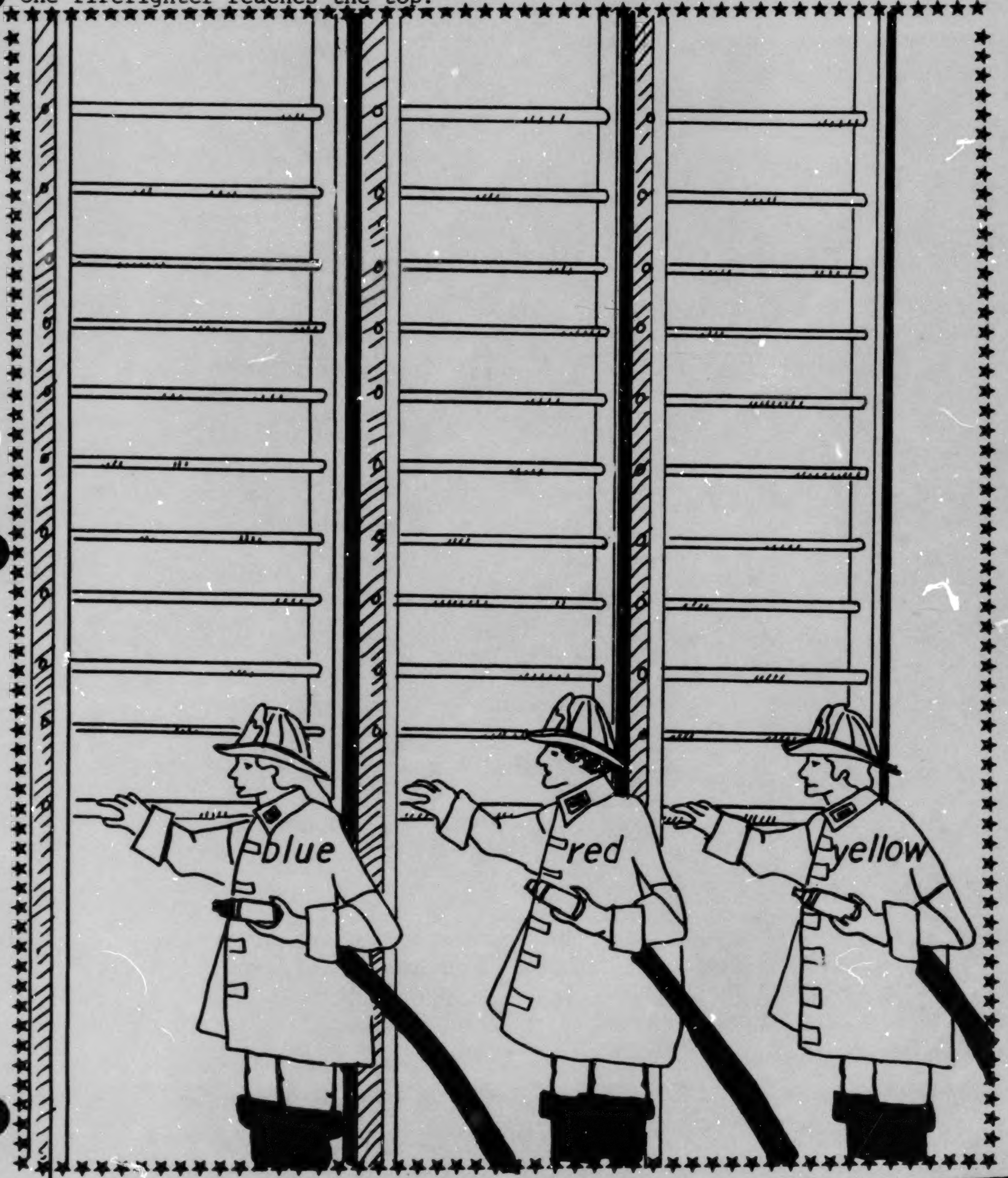
Circle the weather you predict for each day.
On that day, circle the actual weather.

Day	Prediction	Actual Weather
Monday	☀ ☁ ☂	☀ ☁ ☂
Tuesday	☀ ☁ ☂	☀ ☁ ☂
Wednesday	☀ ☁ ☂	☀ ☁ ☂
Thursday	☀ ☁ ☂	☀ ☁ ☂
Friday	☀ ☁ ☂	☀ ☁ ☂

P.O. 1.12.03.02

NAME: ______________________ CLASS: ________ DATE: ________

Place a red, a blue, and a green block in a bag. Pick a block. Color one space of the ladder next to the firefighter whose color you picked. Return the block to the bag and pick again. Continue picking and coloring until one firefighter reaches the top.



603

Unit 69

1.03.09 SUBTRACTION OF TEN(S)

(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

1.03.09.01A subtract 10 from multiples of 10 through 90;

e.g.,

$$\begin{array}{r} 20 \\ -10 \\ \hline 10 \end{array} \qquad 70 - 10 = 60$$

1.03.09.02A subtract multiples of 10 through 90 from multiples of 10 through 90;

e.g.,

$$\begin{array}{r} 40 \\ -20 \\ \hline 20 \end{array} \qquad 40 - 20 = 20$$

1.03.09.03A subtract 10 from any 2-digit number through 99;

e.g.,

$$\begin{array}{r} 74 \\ -10 \\ \hline 64 \end{array} \qquad 74 - 10 = 64$$

1.03.09.04A subtract multiples of 10 from any 2-digit number through 99.

e.g.,

$$\begin{array}{r} 83 \\ -30 \\ \hline 53 \end{array} \qquad 83 - 30 = 53$$

1.03.09

VOCABULARY

TERMS

multiples of 10
digit

GETTING STARTED

Prepare and distribute a blank WIN card and nine counters to each student. Say, "We are going to play WIN. You can win if you cover three numbers in a row on your card. We will make our own WIN cards by writing one digit, zero through eight, in any box on the card. You may only use each number once."

e.g.,

W	I	N
0	2	4
5	8	1
3	7	6

Say, "How much is 8 - 3? (5) Place a counter on the numeral 5. Five is the difference when three is subtracted from eight." Continue the game until a student has covered three numbers in a row.

Prepare and distribute ten sticks and a rubber band to each student. Say, "Count your sticks. How many sticks do you have? Put the rubber band around the sticks. You have one group of ten. How many tens do Jason and Mark have altogether? Two tens is the same as twenty or twenty ones." Ask a student to separate the sticks and count them to check this statement. Say, "How many tens do John, Mark, and Jessie have altogether? How much is three tens?" Repeat this procedure until nine tens is reached. Ask the students to count by tens to ninety.

1.03.09

1.03.09.01 **subtract 10 from multiples of 10 through 90**

STRATEGY 1: Prepare and distribute squared material to the students (nine ten strips per student). Ask the students to count the strips by ten, "ten, twenty, thirty... " Say, "Use your ten strips to show sixty. How many strips will you use? (six) (Demonstrate with large squared material at the chalkboard.) Now take away one ten strip. How many ten strips are left? (five) How much do five tens equal?" (fifty)

Continue this procedure.

STRATEGY 2: Prepare and distribute nine bundles of ten sticks to each pair of students. Say, "Pick up fifty sticks. How many bundles did you pick up? Give one bundle to your neighbor. How many sticks did you give away? How many bundles are left? How many sticks are left?"

Repeat this procedure varying directions and changing partners.

1.03.09.02 **subtract multiples of 10 through 90 from multiples of 10 through 90**

STRATEGY 1: Adapt Strategy 1 used in P.O. 1.03.09.01.

STRATEGY 2: Adapt Strategy 2 used in P.O. 1.03.09.01.

1.03.09.03 **subtract 10 from any 2-digit number through 99**

STRATEGY 1: Prepare and distribute a placemat and squared material (nine tens and nine units) to each student. Say, "We want to show twenty-seven." Write the numeral 27 on the chalkboard. Point to

1.03.09

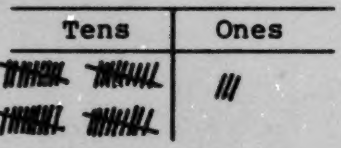
STRATEGY 1: cont'd

each place and say, "How many tens? How many ones? Use your squared material to show twenty-seven on your placemat. We want to subtract ten. How can we do it?" Ask the students to remove one ten. Say, "Look at your placemats. With what amount did we start? How much did we take away?" On the chalkboard, write, - 10 underneath the 27. e.g., $\begin{array}{r}27\\ \underline{-10}\end{array}$. Say, "Did we remove any ones? How many ones do we have? Write 7 in the ones place at the chalkboard. Did we remove any tens? How many did we remove? How many do we have left? Write the numeral 1 in the tens place at the chalkboard. What number does one ten and seven ones name?" Continue with other subtraction examples.

STRATEGY 2:

Prepare and distribute place value mats, bundles of ten sticks and nine single sticks to each student. Say, "We are going to show forty-three on our mats. What is another name for forty-three?" (four tens and three ones) Demonstrate placement of the sticks on the mat.

e.g.,



Say, "Take away one ten. How many bundles will you take away? (one bundle) How many bundles are left? How many ones did you take away? How many are left?"

Repeat this procedure.

1.03.09.04 **subtract multiplies of 10 from any 2-digit number through 99**

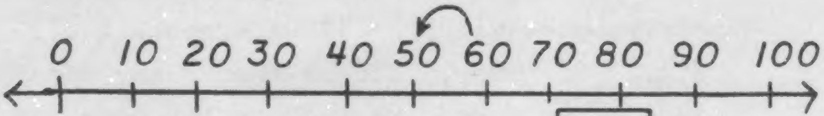
e.g., $\begin{array}{r}83\\ \underline{-30}\\ 53\end{array}$ 83 - 30 = 53

Adapt strategies 1 and 2 from P.O. 1.03.09.03.

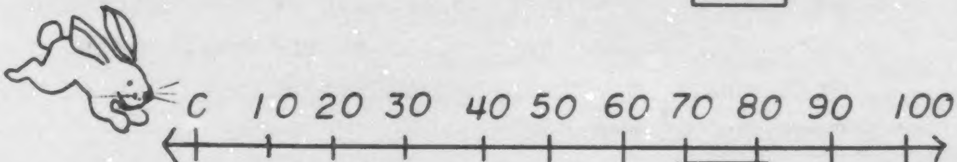
P.O. 1.03.09.01

NAME: ______________________ CLASS: ________ DATE: ________

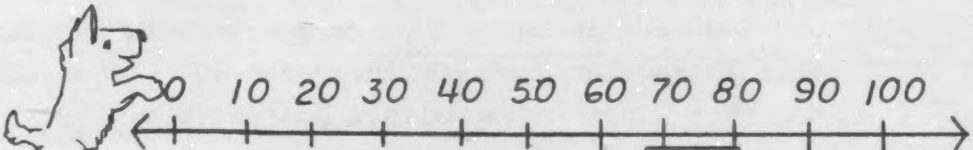
Complete the examples using the number line.


0 10 20 30 40 50 60 70 80 90 100

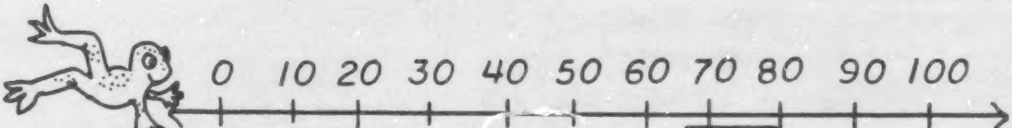
60 - 10 = 50


C 10 20 30 40 50 60 70 80 90 100

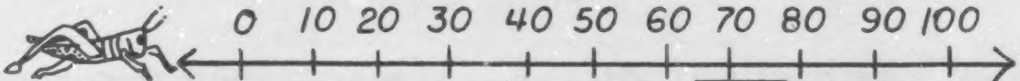
40 - 10 = ☐


0 10 20 30 40 50 60 70 80 90 100

70 - 10 = ☐


0 10 20 30 40 50 60 70 80 90 100

30 - 10 = ☐

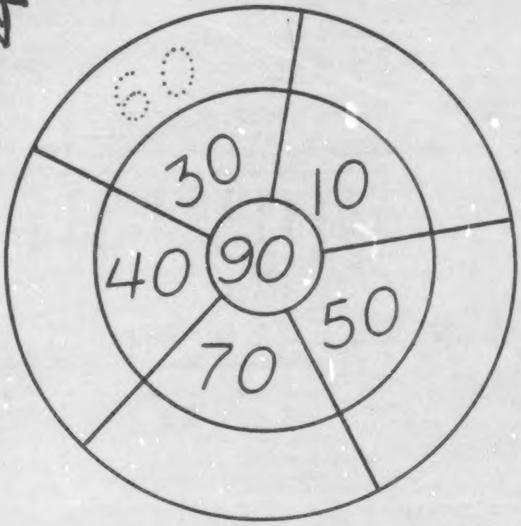

0 10 20 30 40 50 60 70 80 90 100

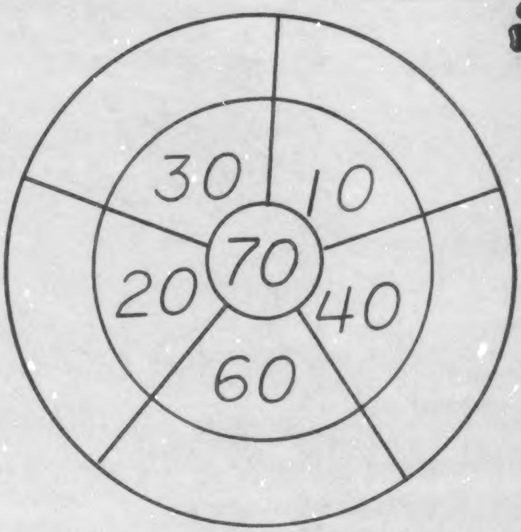
50 - 10 = ☐

P.O. 1.03.09.02

NAME: ______________________________ CLASS: ________ DATE: ________

Subtract each number in the inner ring from the number in the center. Write the difference in the outer ring.


60
30
10
40
90
50
70


30
10
20
70
40
60

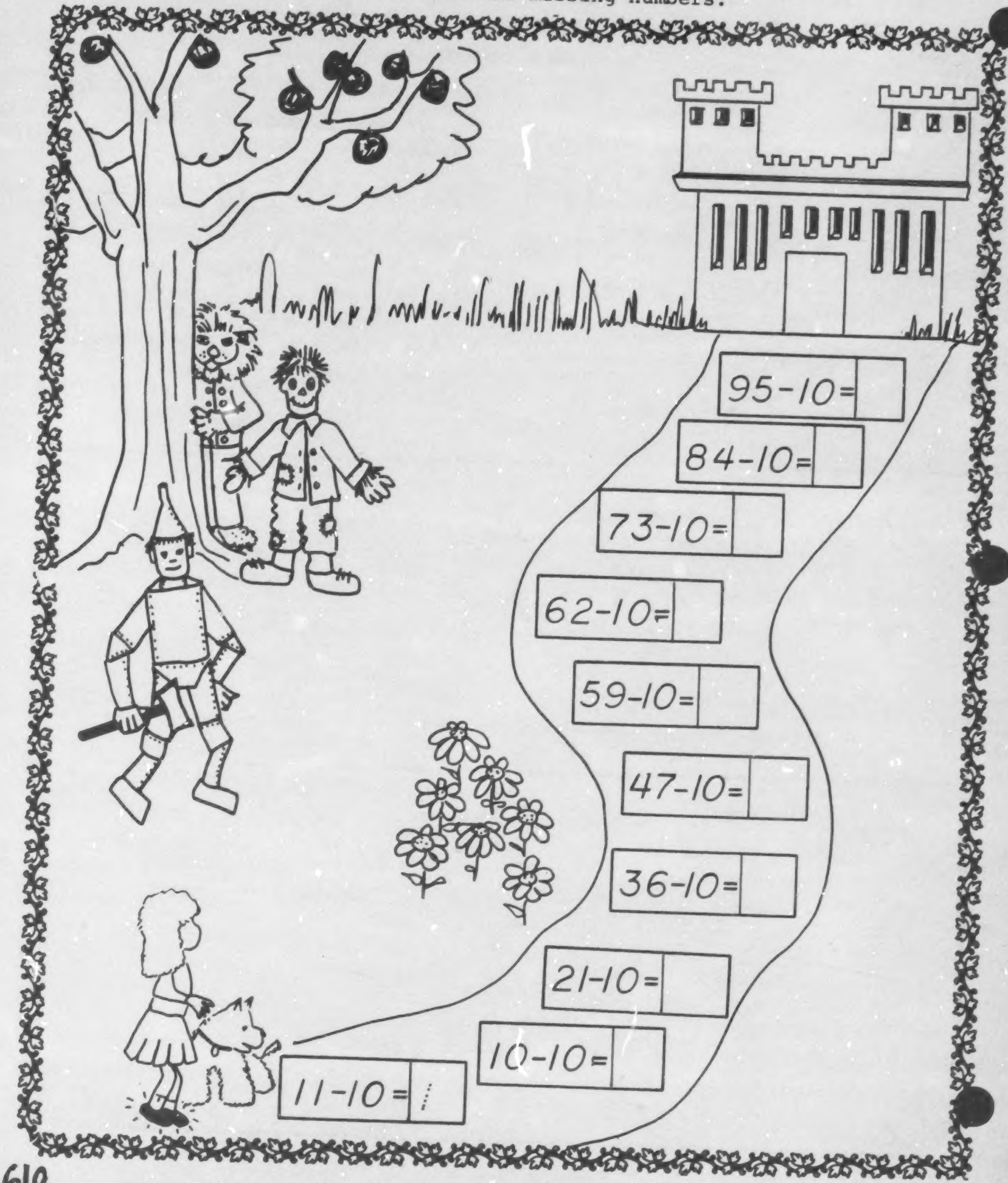
60	70	80	90	50
−30	−50	−20	−60	−10

20	90	60	30	50
−10	−20	−50	−20	−20

P.O. 1.03.09.03

NAME: ______________________________ CLASS: ________ DATE: ________

Dorothy must follow the yellow brick road. Help her complete each number sentence. Write the missing numbers.



95-10= ☐

84-10= ☐

73-10= ☐

62-10= ☐

59-10= ☐

47-10= ☐

36-10= ☐

21-10= ☐

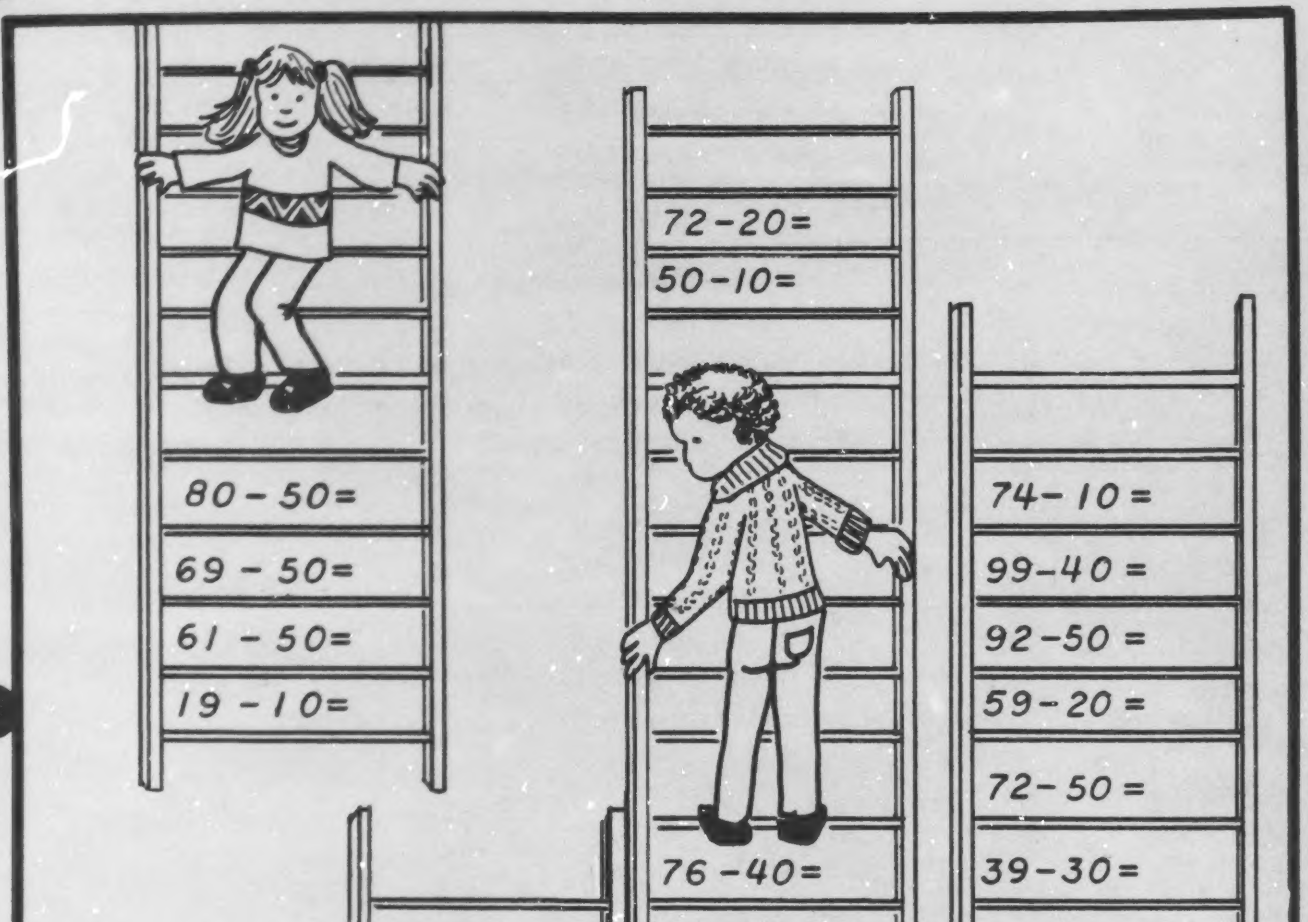
10-10= ☐

11-10= 1

P.O. 1.03.09.04

NAME:____ **CLASS:**__________ **DATE:**________

Complete each subtraction example.


80 - 50 =
69 - 50 =
61 - 50 =
19 - 10 =
72 - 20 =
50 - 10 =
76 - 40 =
46 - 20 =
44 - 30 =
42 - 30 =
74 - 10 =
99 - 40 =
92 - 50 =
59 - 20 =
72 - 50 =
39 - 30 =
72 - 40 =
59 - 30 =
34 - 20 =
20 - 10 =

Unit 70

1.03.10 SUBTRACT A 2-DIGIT NUMBER FROM A 2-DIGIT NUMBER WITHOUT REGROUPING (EXCHANGE)

(3-5 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

1.03.10.01A subtract a 2-digit number from a 2-digit number without regrouping (exchange);

e.g.,

$$\begin{array}{r} 47 \\ -24 \\ \hline 23 \end{array}$$

1.03.10.02A check subtraction problems by using addition;

e.g.,

$$\begin{array}{rcr} & & \underline{\text{check}} \\ 67 & & 43 \\ -24 & & +24 \\ \hline 43 & & 67 \end{array}$$

*1.03.10.03A solve story problems related to skills learned in this module.

e.g.,

There were 65 raisins. John ate 32 raisins. How many raisins were left?

$$\begin{array}{r} 65 \\ -32 \\ \hline 33 \end{array}$$

33 raisins were left.

1.03.10

VOCABULARY

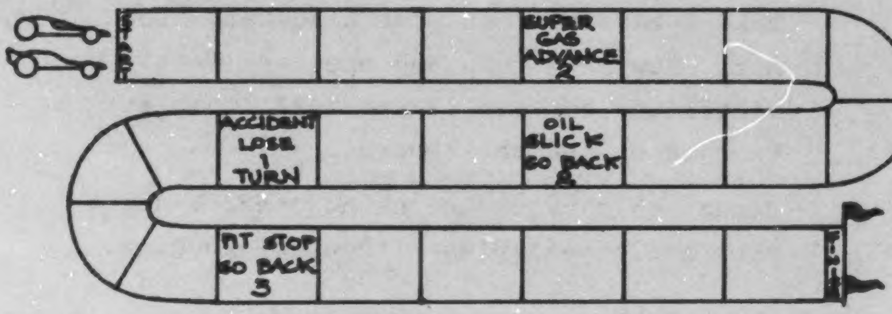
TERMS

difference

GETTING STARTED

Prepare subtraction flashcards (minuends through 18) and draw a race track on the chalkboard. Divide the students into four teams. Each time a student answers a card correctly, the team car advances one space. Continue this procedure until one team car has landed on the space marked "Finish".

e.g.,


START
SUPER GAS ADVANCE 2
ACCIDENT LOSE 1 TURN
OIL SLICK GO BACK 2
PIT STOP GO BACK 3
FINISH

Prepare and display numeral cards for multiples of 10 through 90.

Ask a student to select two cards and create a subtraction sentence. Remind the students we must subtract the smaller number from the larger number. Ask the student to record his/her number sentence on the chalkboard. Continue this procedure until each student has had a chance to participate.

1.03.10

1.03.10.01 **subtract a 2-digit number from a 2-digit number without regrouping (exchange)**

STRATEGY 1: Prepare and distribute place value mats and squared material to each student. Write 47 on the chalkboard. Say, "Use your tens and ones strips to show this numeral on your mat. How many tens are in 47? How many ones?" Say, "We want to take 24 away from 47." Write $\begin{array}{r}47\\-24\\\hline\end{array}$ on the chalkboard. Say, "How many ones will we take away from the ones place? Take 4 ones away on your placemat. How many tens will we take away from the tens place? Take 2 tens away on your placemat. Look at your mat. How many tens and ones are left? What is the difference between 47 and 24?" Complete the example on the chalkboard.

Repeat this procedure using other 2-digit subtraction examples without regrouping.

STRATEGY 2: Prepare and display a pile of cards with subtraction examples involving 2-digit numerals needing no exchange, e.g. $\begin{array}{r}48\\-25\\\hline\end{array}$. Write $\begin{array}{r}36\\-12\\\hline\end{array}$ on the chalkboard. Say, "Which numbers are in the tens column? (Write tens on top of this column.) Which numbers are in the ones column?" (Write ones on top of this column.)

e.g.,

Tens	Ones
3	6
-1	2

Say, "Which column do we work with first? What is the difference between 6 and 2?" Ask a student to write the difference at the chalkboard. Say, "What is the difference between 3 and 1?" Ask a student to write the difference at the chalkboard. Say, "What is the difference between 36 and 12?" Display the pile of subtraction cards. Ask a student to select a card from the group and write

STRATEGY 2: cont'd the subtraction example on the chalkboard and read it aloud. Ask another student to find the difference.

Repeat this procedure with other subtraction cards.

1.03.10.02 check subtraction problems by using addition

STRATEGY 1: Prepare and distribute place value mats and squared materials to each student. Write $\begin{array}{r}67\\ \underline{-24}\end{array}$ on the chalkboard. Ask the students to use their squared material to display 67 on their mats. Say, "How many ones are there? How many must we take away?" Ask students to take away the 4 ones on their mats. Say, "How many ones are left?" Repeat with the tens column. Ask a student to read the difference between 67 and 24. Say, "We can check our answers by putting back what we took away. Put back what was taken away. (Demonstrate) How much do we have now? (67) Is that the same amount with which we started? Then our subtraction is correct." Write the check on the chalkboard next to the subtraction example. Draw an arrow connecting the sum of the check with the minuend of the subtraction example. e.g.,

$$\begin{tikzcd} 67 \arrow[ddr, no head] & 43 \\ \underline{-24} & \underline{+24} \\ 43 & 67 \end{tikzcd}$$

Point to the arrow. Say, "When these numbers match we know our subtraction example is correct.

Repeat this procedure with other examples.

STRATEGY 2: Prepare and distribute groups of bundled ice cream sticks, single sticks and the following activity

STRATEGY 2: cont'd

sheet to each student.

e.g.,

Find the Difference	Check by Adding
$\begin{array}{r}26\\-11\\\hline\square\end{array}$	$\begin{array}{r}\square\\+11\\\hline 26\end{array}$
$\begin{array}{r}35\\-12\\\hline\square\end{array}$	$\begin{array}{r}\square\\+12\\\hline 35\end{array}$
$\begin{array}{r}27\\-21\\\hline\square\end{array}$	$\begin{array}{r}\square\\+21\\\hline 27\end{array}$

Say, "Look at the first example on your worksheet." Write 26-11 on the chalkboard. Say, "Show twenty-six sticks on your desk. How many sticks will we take away? (11) Remove eleven sticks. How many sticks are left on the desk?" (15) Write the numeral 15 in the box next to the example 26 - 11 = ☐. Say, "How do we check the example to make sure the answer is correct? Put back the number of sticks you took away. How many sticks are there now? (26) Our subtraction is correct because there are now twenty-six sticks." Ask the students to complete the addition check for the examples on the activity sheet, e.g., $\begin{array}{r}15\\+11\\\hline 26\end{array}$.

Continue this procedure.

1.03.10.03 **solve story problems related to skills learned in the module**

STRATEGY 1: Tell the following story. Say, "Mary opened the kitchen cabinet. She saw 25 cups. She took out 15 cups. How many cups were left in the cabinet?" Ask a student to write the example on the

STRATEGY 1:
cont'd

chalkboard that tells about this story $\begin{array}{r}25\\-15\\\hline 10\end{array}$. Ask another student to show the addition sentence to check the answer $\begin{array}{r}10\\+15\\\hline 25\end{array}$.

Repeat this procedure with other stories.

STRATEGY 2:

Prepare and distribute paper cups, plates, crayons, chalk, pencils, and blocks to each group of five students. Ask the students to make up a subtraction number story using the items provided. Allow the students to act out their stories and pose questions for the rest of the class to answer. Ask one student in the group to write an addition sentence to prove that the group has given the correct answer.

Repeat this procedure.

P.O. 1.03.10.01

NAME: ____________________ CLASS: __________ DATE: ________

Use page 81a with page 81b.
Find the differences to the problems on page 81a.
Go to page 81b.

ⓐ 64 - 20	ⓑ 66 - 12	ⓒ 28 - 10	ⓓ 73 - 10	ⓔ 59 - 12
ⓕ 98 - 10	ⓖ 98 - 25	ⓗ 37 - 33	ⓘ 58 - 13	ⓙ 49 - 21
ⓚ 33 - 10	ⓛ 55 - 22	ⓜ 76 - 30	ⓝ 17 - 10	ⓞ 99 - 5
ⓟ 58 - 20	ⓠ 45 - 40	ⓡ 87 - 30	ⓢ 89 - 11	ⓣ 68 - 62
ⓤ 97 - 2	ⓥ 33 - 20	ⓦ 78 - 10	ⓧ 96 - 13	ⓨ 98 - 2
		ⓩ 99 - 2		

P.O. 1.03.10.01

NAME: ____________________ CLASS: ________ DATE: ________

Color in the answer box for each of the subtraction problems on page 81a.
What numeral have you formed?

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

P.O. 1.03.10.02

NAME: ______________________ CLASS: ________ DATE: ________

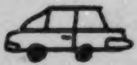
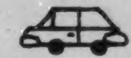
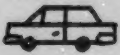
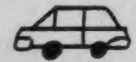
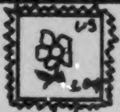
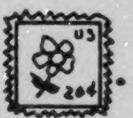
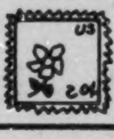
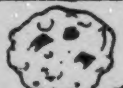
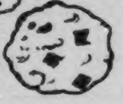
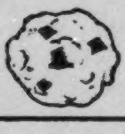
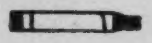
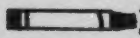
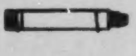
Find the difference. Check by addition.

28 -10	18 +10	24 -12	.... + ...
37 -12	.... + ...	55 -25	.... + ...
47 -24	.... + ...	39 -26	.... + ...
58 -21	.... + ...	42 -30	.... + ...
67 -45	.... + ...	56 -33	.... + ...

P.O. 1.03.10.03

NAME: ____________________ CLASS: ________ DATE: ________

Solve each story problem. Write the subtraction sentence.

There were 38  in the parking lot. 17  drove away. How many  were left? ________ 	
John had 87  in his book. He gave Harry 23 . How many did John have then? ________ 	
Mother made 45 . Brother and sister ate 31 . How many were left? ________ 	
The Teacher had 68 . She gave 25  to the children. How many did she have left? ________ 	

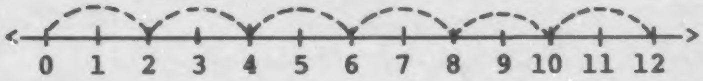
1.01.22 COUNT BY TWOS THROUGH 98

(2-3 lessons)

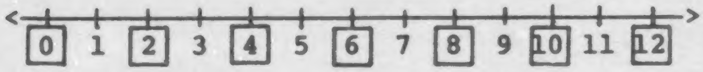
PERFORMANCE OBJECTIVES

The student will be able to...

1.01.22.01B identify the numerals in order from 0 through 98, counting by twos; e.g.,


0
1
2
3
4
5
6
7
8
9
10
11
12

1.01.22.02B write the numerals in counting order from 0 through 98, counting by twos. e.g.,


0
1
2
3
4
5
6
7
8
9
10
11
12

1.01.22

VOCABULARY

TERMS

skip counting

GETTING STARTED

Prepare and display a set of numeral cards with various numerals from 1 through 98. Divide the class into two teams. Ask a student from Team 1 to pick a numeral card and read the number. Say "Which number is one before this number? Which number is one after that number?" If the student answers correctly he/she scores a point for his/her team.

Prepare a set of cards with number clues, e.g., I am the numeral that is one before 96.

Prepare and distribute a set of bingo cards and markers to each student. Say, "Today we are going to play a game like Bingo called 'NUMBO'. I have a set of clue cards. I will pick a card and read the clue. If you have the correct answer on your 'NUMBO' card, place a marker on that numeral."

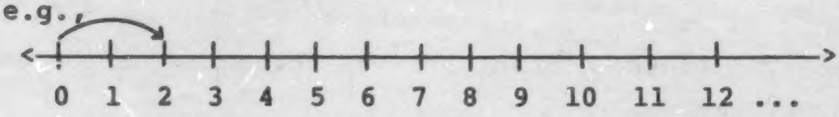
Play the game until a student has covered all the numbers in a row either across, up and down, or diagonally.

1.01.22

1.01.22.01 **identify the numerals in order from 0 through 98, counting by twos**

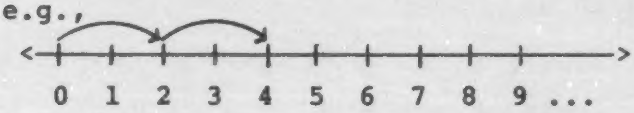
STRATEGY 1: Prepare and display a number line from 0 through 98 at the chalkboard. Say, "We're going to play a game called 'Skip-Counting'. Watch how I play this game." Put your piece of chalk at 0 and draw a curved line to the numeral 2.

e.g.,



Say, "At what numeral did I begin? At what numeral did I stop? What numeral did I skip?" Repeat this procedure skipping from 2 to 4 on the number line.

e.g.,



Ask a student to come to the chalkboard and continue this pattern. Say, "At what numeral should you start? Where will you land? What numeral will you skip?" After the student draws the curved line he/she may call another student to continue. Repeat this procedure until a student reaches 98. Then go back to 0 and ask the students to read, in order, all the numerals on which we landed.

STRATEGY 2: Prepare and distribute a set of cards numbered 0 through 35. Ask the students to sit in a circle in the middle of the room with their cards. Say, "I want each of you to tell us the numeral on your card. Let's start with 0." As the student says the numeral, hold up the card. Ask the students to repeat his/her numeral as you walk around the circle taking away all of the odd numbered cards,

1.01.22

STRATEGY 2: cont'd

e.g., 1, 3, 5, 7... Say, "I just took away some cards. Which cards did I take away? (odd) Let's repeat the numerals that are left." Ask all of students to repeat the numeral as each card is raised. After all numerals have been repeated, say, "What is the first numeral card? (0) What is the next numeral card? (2) We are skip counting. We are counting by twos."

Reinforce the understanding that when we count by twos we skip over one number.

1.01.22.02 **write the numerals in counting order from 0 through 98, counting by twos**

STRATEGY 1: Prepare and display several jars or containers, each with an even number of counters and one empty container. Be sure that each jar has a different number of cubes. Ask all of the students to sit in a circle in the middle of the room.

Place the jars in the middle of the circle. Ask the students to investigate the jar. Ask individual students to count the objects in each jar counting by twos. For every two objects that are counted, ask another student to write the corresponding numeral on the chalkboard, e.g., if a jar contains 20 counters the student will write 0, 2, 4, 6, ...20 on the chalkboard. Repeat this procedure for each jar. After the objects have been counted ask the students to order the jars.

STRATEGY 2: Prepare and distribute to each student a rexographed hundreds chart with only odd numbers and the numeral 100 written on it. Say, "Many

STRATEGY 2:
cont'd

numbers are missing from this chart. We will count by twos and fill in the missing numbers. Put your finger on number 1. What number comes next? (2) Write 2 in the box next to number 1. Now let's count by twos. What number comes after 2 counting by twos? (4) Find the box to write the number 4." Demonstrate.

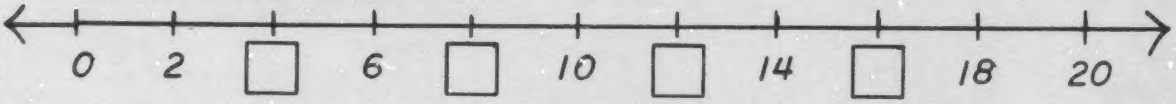
Continue this procedure through 98.

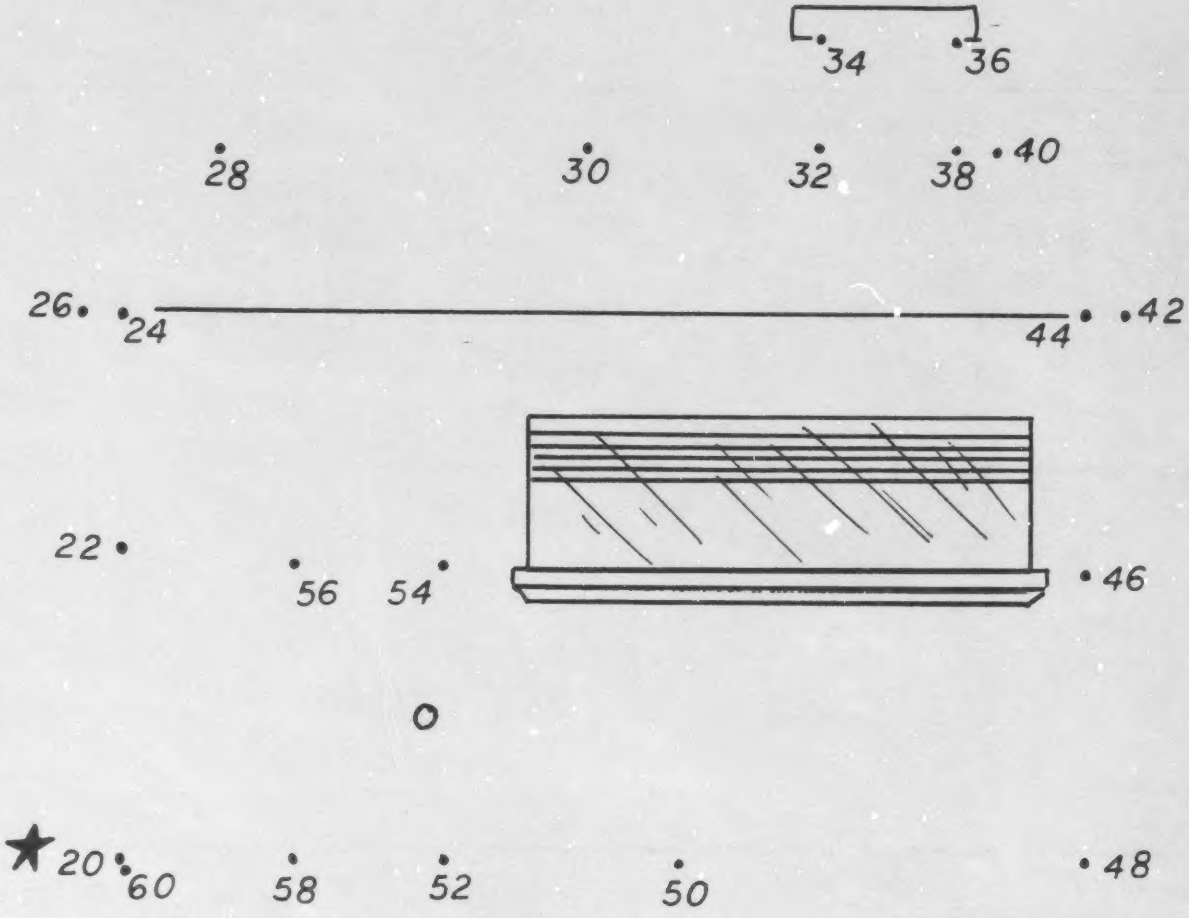
626

P.O. 1.01.22.01

NAME:____ CLASS:_________ DATE:_______

Fill in the number line.
Find the ★.
Count by twos to connect the dots.


0
2
☐
6
☐
10
☐
14
☐
18
20


34
36
28
30
32
38
40
26
24
44
42
22
56
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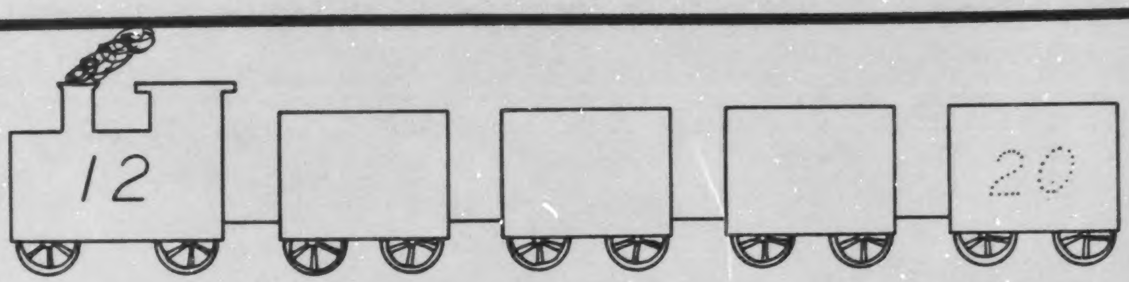
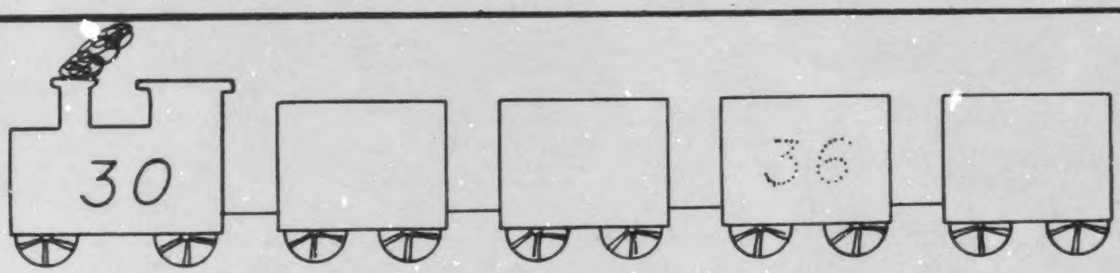
46
O
★
20
60
58
52
50
48

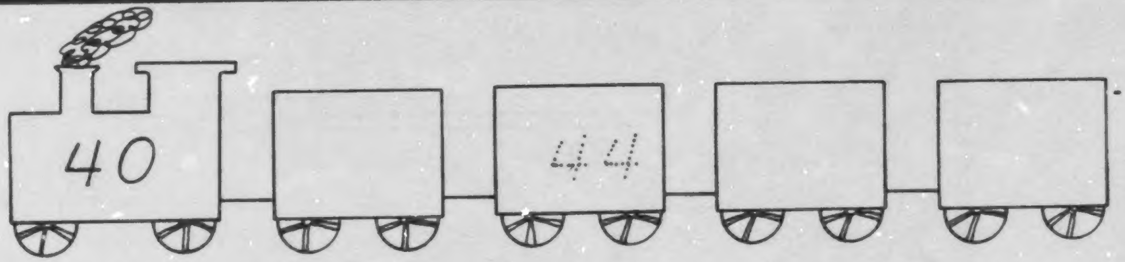
P.O. 1.01.22.02

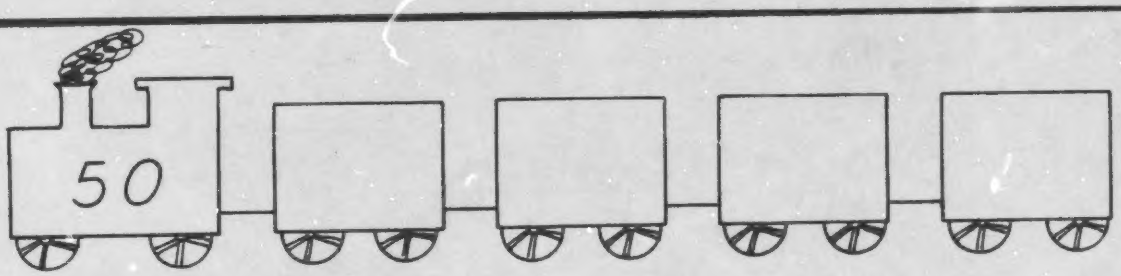
NAME: ______________________ CLASS: ________ DATE: ________

Write the numerals in each train car in correct counting order. Count by twos.









Unit 72

1.01.23 EVEN AND ODD NUMBERS THROUGH 99

(3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

*1.01.23.01A decide whether or not a group (set, pile, lot, heap, bunch) has an even number of objects;

e.g.,

Separate a group of blocks into two groups. If they form equal groups, then the original group has an even number of blocks.

1.01.23.02B identify even numbers from 0 through 98;

e.g.,

The following numbers are even numbers.

0, 2, 4, 6, 8, 10... 98

1.01.23.03B identify numbers that are odd (not even) from 1 through 99.

e.g.,

The following numbers are odd (not even) numbers.

1, 3, 5, 7, 9... 99

1.01.23

VOCABULARY

TERMS

even
odd

GETTING STARTED

Place a number line numbered 0 through 20 on the floor. Ask the students to form a line. Say, "We are going to hop along the number line counting by twos. Start at zero. Where do you think you will land after your first hop? Why?"

Continue this procedure choosing arbitrary starting points.

Prepare and display several number lines each with different numbers on the chalkboard. e.g., 0 through 10, 20 through 30, 60 through 70. Begin by circling the first even number and saying it aloud. Say, "We will count by twos starting with the number I circled. What is the next number to be circled?" Circle that number. Ask a student to circle the next number counting by twos. Continue with the other number lines.

1.01.23

1.01.23.01 **decide whether or not a group (set, pile, lot, heap, bunch) has an even number of objects**

STRATEGY 1: Ask the students to form a line. Say "I would like each of you to have a partner." Pair off the students. Say, "Does everyone have a partner?" If the reply is yes, say, "That tells us that there is an even number of students. Everyone has a partner, everyone is paired evenly." If the reply is no, say, "Not everyone has a partner. We do not have an even number of students in our class because one person does not have a partner. How can we make our group into an even number of people?" Encourage the students to talk about possible solutions for making an even group, e.g., the teacher pairs up with a student, one student returns to his/her seat...

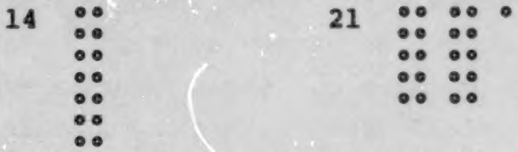
STRATEGY 2: Prepare and distribute interlocking cubes to each student. Arrange the students into groups of five or six. Place varying amounts of cubes (from 1 to 10) into baggies and place as many bags on each table as the number of students in the group. Ask each student to take one bag of cubes and match the cubes to see if they can make partners. Say, "If every cube has a partner, the group is even. If you cannot give a cube a partner, the group is not even. Are your groups even? How do you know?" Ask the students to put the cubes back into the baggies and pass the bag to the next student in round robin fashion. Say, "If each cube has a partner, the group has an even number of cubes. If there is one cube without a partner, then the group does not have an even number of cubes."

1.01.23

1.01.23.02 **identify even numbers from 0 through 98**

STRATEGY 1: Prepare baggies containing different numbers of objects (0 through 30), placemats, paper and magnetic discs. Distribute one baggie, a placemat and paper to each student. Say, "I would like each of you to count the number of objects in your bag and write the number on your paper. Now arrange your objects in groups of two."

e.g.,



Label two columns on the chalkboard: Even and Not Even. When the students have finished, ask each one to tell his/her number and whether or not he/she was able to pair off each object. Say, "Is your number even? How do you know?" Write all the responses of even numbers in one column and all the responses of not even numbers in the other column.

e.g.,

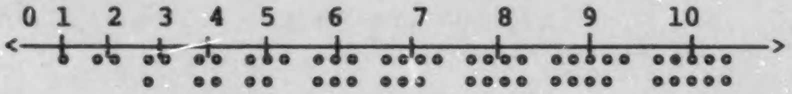
Even	Not Even
20	17
18	23
4	
12	
46	

After all the students' numbers have been listed, ask the students to look at the ones place in each number in the evens column. Say, "What digits do you see in the ones place?" List those numerals separately in counting order. 0, 2, 4, 6, 8. Help students to discover that any number that has a zero, two, four, six or eight in the ones place is an even number.

STRATEGY 2: Prepare and distribute a blank number line (starting with zero) and a crayon to each student. Draw a demonstration number line on the chalkboard numbered 0 through 10.

Say, "When we count, which number do we say after zero? (1) Draw a small circle under the number one. Draw your circle just where I drew mine. (Demonstrate.) What is our next counting number? (2) Find the numeral two on the number line. Watch where I draw two circles. Draw your circles under the two just as I did." Continue this procedure through ten.

e.g.,



Point to the zero and say, "We started at zero. Let's look at number 1. How many dots did we draw under number one? Why? Does one have a partner? Let's look at the number two. How many dots did we draw? Does two have a partner?" Continue this procedure through ten.

Say, "Let's circle all of the numbers that have partners. Let's look at the numbers we have circled and say them together: two, four... ten." List the numerals 0, 2, 4, 6, 8 on the chalkboard. Say, "These numbers are very special. These are even numbers. Any number that ends with zero, two, four, six or eight is also an even number." Write a numeral on the chalkboard, e.g., 16, and have the number identified. Say, "What digit is in the ones place? Is 6 one of our special numbers? Therefore, we know that sixteen is an even number." Continue the procedure of identifying even numbers through 98.

1.01.23

1.01.23.03 identify numbers that are odd (not even) from 1 through 99

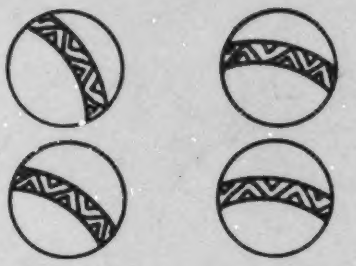
STRATEGY 1: Adapt Strategy 1 used in P.O. 1.01.23.02 for odd numbers.

STRATEGY 2: Prepare and display a hundreds chart on which the even numbers have been colored yellow. Point to the numbers that are not shaded as the students read them aloud and underline the digit in the ones place. Point to the digits in the ones place as you say, "Do you see a pattern in the numbers we have just read? (The numbers all end with a 1, 3, 5, 7 or 9.) These numbers are not even. We call them odd numbers because when we pair them, we get one that doesn't have a partner. Is 31 odd? Is 38 odd? Why not?" Continue this procedure for numbers through 99. Ask students to take turns coloring the odd numbers on the hundreds chart with a red crayon.

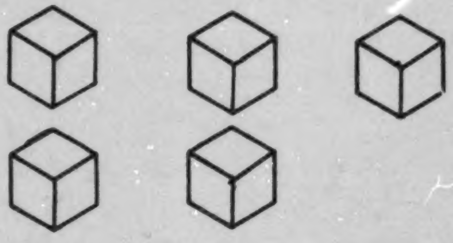
P.O. 1.01.23.01

NAME: ______________________ CLASS: __________ DATE: ________

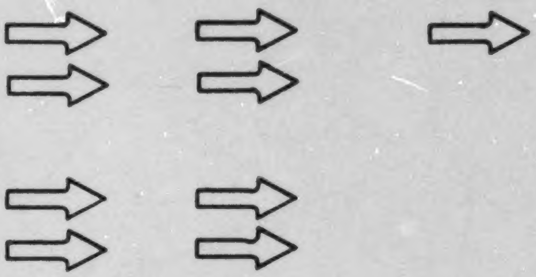
Separate each set into groups of two. Show whether the group in each box is even or not even.



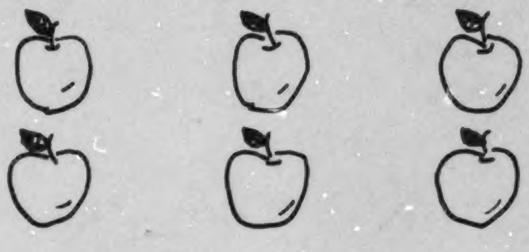
● even ○ uneven



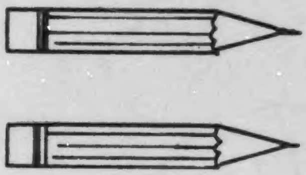
○ even ○ uneven



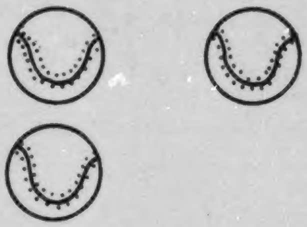
○ even ○ uneven



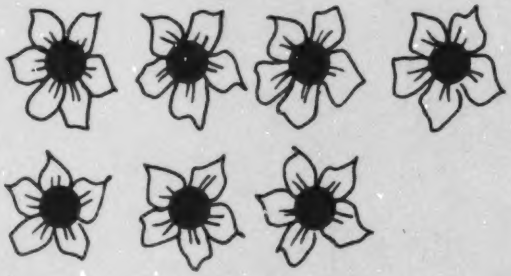
○ even ○ uneven



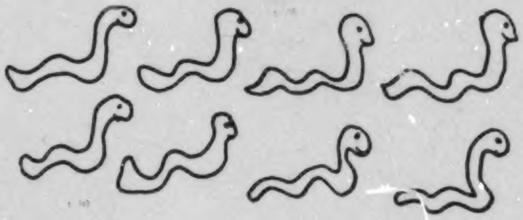
○ even ○ uneven



○ even ○ uneven



○ even ○ uneven



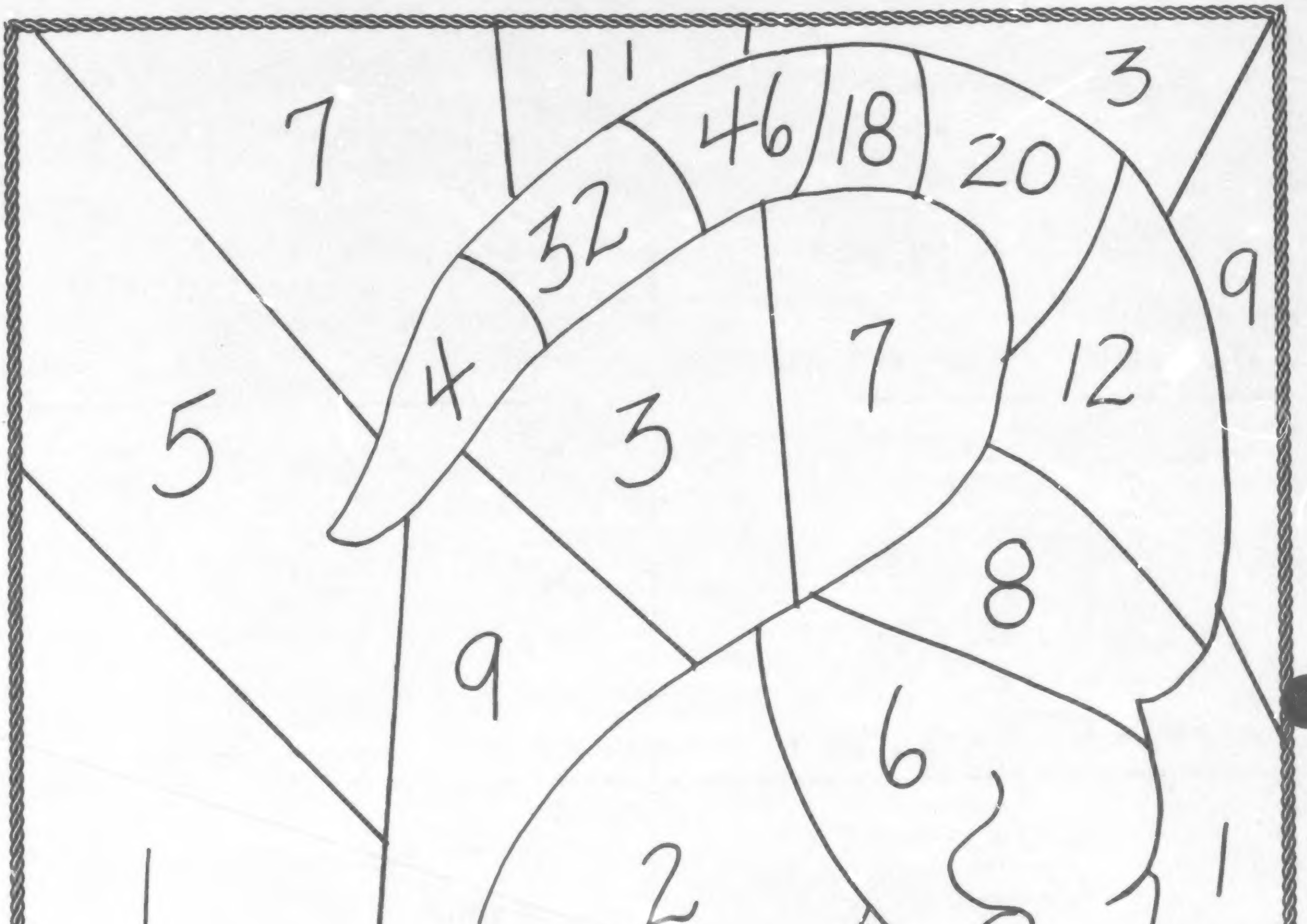
○ even ○ uneven

636

P.O. 1.01.23.02

NAME: ______________________ CLASS: ________ DATE: ________

Color the even numbers.
What picture have you found?


11
7
46
18
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6
1
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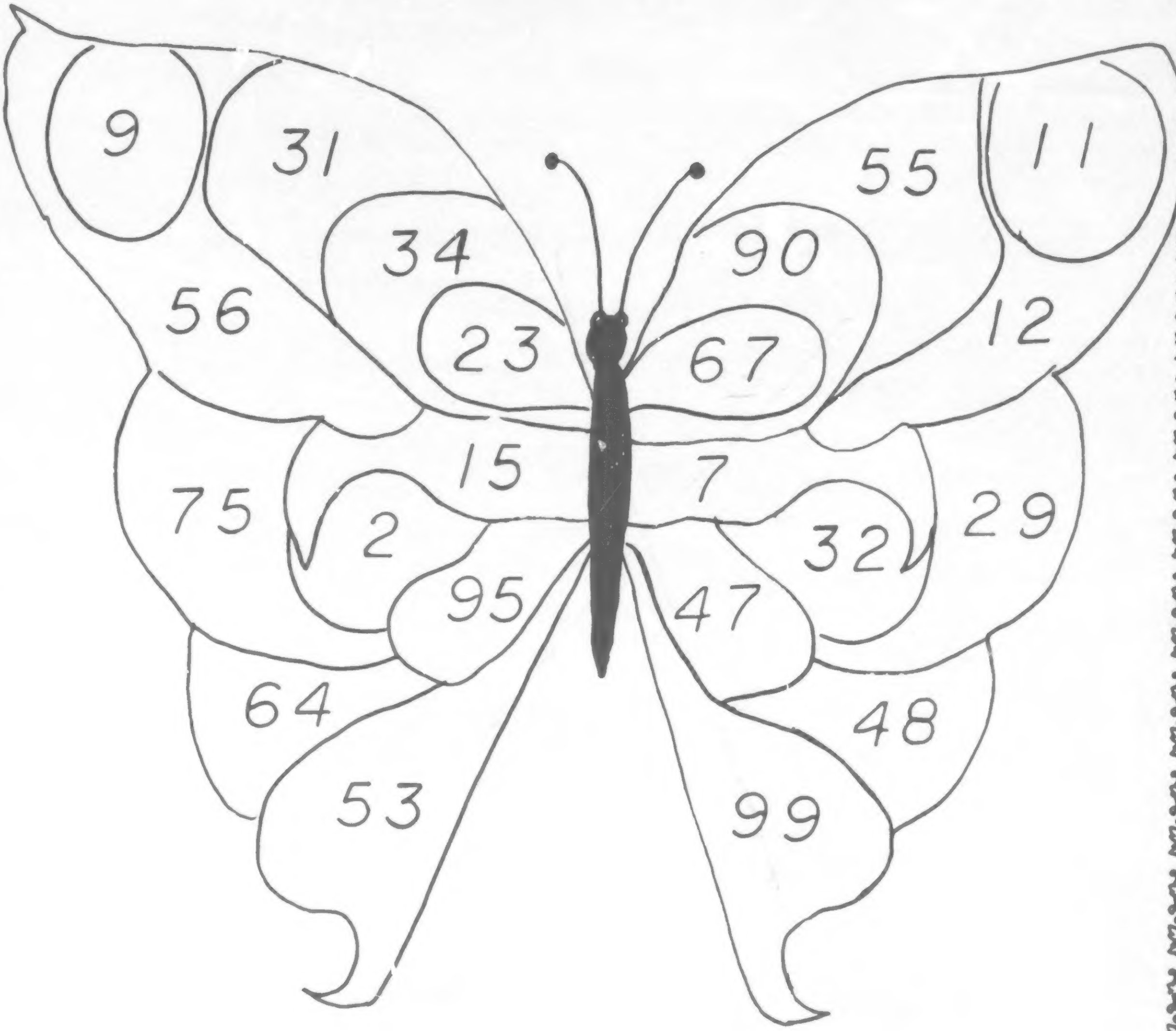
9

P.O. 1.01.23.03

NAME: ______ CLASS: ______ DATE: ______

Color the odd numbers. What picture have you found?


9
31
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53
99

637